



About UNH

[General Information](#)

[UNH Affirmative Action Statement](#)

[University Calendar](#)

[Campus Map](#)

[Trustees and Administrative Officers](#)

[Enrollment Statistics, Fall Semester](#)

[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)

[Degrees and Major Programs of Study](#)

[Program Abbreviations](#)

[Special University Programs](#)

[Course Descriptions](#)

[Time and Room Schedule](#)

[Faculty Listing](#)

Other University

Programs

[Graduate School](#)

[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

Welcome to the UNH online undergraduate catalog!

Offering new features, easy-to-navigate pages, and updated content, the electronic catalog offers a wealth of resources as you explore the great diversity of academic options and life here at UNH. With plans for an online-only catalog next year, this effort marks a major step in honoring the University's commitment to being a national leader in sustainable higher education.

Quick Links

» [Course Descriptions](#)

» [General Information](#)

Including Admission, Financial Aid, and Campus Life

» [University Academic Requirements](#)

» [Degrees and Majors Programs of Study](#)

» [Special University Programs](#)

Including University Honors Program and the Hamel Center for Undergraduate Research

Colleges

» [College of Engineering and Physical Sciences \(CEPS\)](#)

» [College of Health and Human Services \(CHHS\)](#)

» [College of Liberal Arts \(COLA\)](#)

» [College of Life Sciences and Agriculture \(COLSA\)](#)

» [Thompson School of Applied Science \(TSAS\)](#)

» [University of New Hampshire at Manchester \(UNHM\)](#)

» [Whittemore School of Business and Economics \(WSBE\)](#)

Other University Programs

» [Continuing Education and Summer Session](#)

» [Graduate School](#)



» Course Descriptions

We are always looking for ways to make this online resource even better. Please fill out our [survey](#) or [e-mail us](#) with your feedback.

If you are a prospective student and need more information about the University, fees, programs, campus tours, etc., please visit the [Admissions website](#) or contact [UNH Admissions](#).

If you are a current student and have additional questions about requirements, programs, classes, etc., please contact the [UNH Advising and Career Center](#), or the specific academic department.

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UNH Search:

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About UNH

General Information

[Introduction](#)
[Admission](#)
[Financial Aid](#)
[Computing and Information Services \(CIS\)](#)
[Campus Life](#)
[Programs and Services for Students](#)
[Health Services](#)
[Fees and Expenses*](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« [Introduction](#)

What makes the University of New Hampshire (UNH) an outstanding institution? Every day, brilliant, dedicated, inventive, hard-working people come together to teach, learn, and discover, always with an entrepreneurial spirit that has made many of our academic and research programs world-class. They are motivated by passion, by a spirit of inquiry, and by a desire to make a difference in the world.

What makes UNH the "best of both worlds" for undergraduate education? We offer students the living and learning environment of a classic New England liberal arts college with the breadth, spirit of discovery, and civic commitment of a major research university. This is rare among American institutions of higher education, and students and faculty will tell you it is our greatest asset.

[The University Today](#)

Founded in 1866 as one of the first land-grant colleges in the nation, the University of New Hampshire today remains true to its original land-grant mission as one of only eight universities in the U.S. to hold land-, sea-, and space-grant charters.

The University comprises six colleges: the College of Engineering and Physical Sciences; the College of Life Sciences and Agriculture, which includes the Thompson School of Applied Science; the College of Health and Human Services; the College of Liberal Arts; UNH Manchester; and the Whittemore School of Business and Economics. UNH serves more than 11,300 undergraduate and 2,400 graduate students in 100 undergraduate and 70 graduate programs of study.

A comprehensive research university, UNH received more than \$99 million in grants in 2008. The University has a unique commitment to undergraduate research, and has an endowed undergraduate research program that provides students from all disciplines with faculty mentoring and financial support to pursue independent research and scholarship.

The University of New Hampshire is at the forefront of developing nationwide university best

practices to address climate change. Through its *EcoLine* project, UNH will be the first university in the U.S. to use renewable landfill gas as its primary energy source, significantly reducing greenhouse gas emissions. UNH also developed the first University greenhouse gas inventory tool, which is now used by more than 300 universities, and established the first endowed University-wide program to integrate sustainability principles into University curriculum, operation, research, and engagement.

A Powerful Linking of Teaching and Research

Where the University of New Hampshire has linked teaching and research programs with the practical realities of life, it has set the international standard with centers and institutes whose names have become synonymous with excellence in such fields as sustainability, computer interoperability, ocean mapping, child study and development, and experiential education.

Such research power translates into exceptional educational opportunities for our talented students. The University prides itself on graduating students who have undertaken significant research. In recent years hundreds of students, from all disciplines, have experienced the thrill of designing their own research projects, collaborating with faculty, and presenting their findings in a public forum. Robust undergraduate research programs enable students to conduct research year-round on campus and around the world.

The University's international research opportunities program is among the largest of its kind and serves as a model for others nationwide. Today the internationalization of the University is an accomplished fact. The study abroad program and international studies major are strong and growing. Faculty are in demand as visiting professors at universities around the globe (many as Fulbright Fellows), and bring their experiences back to Durham.

Mission

UNH offers a broad array of undergraduate, professional, graduate, and research programs. Nearly 90 percent of the full-time faculty hold doctoral or terminal degrees, and many have earned national and international reputations.

The University of New Hampshire has a threefold mission of teaching, research, and public service.

Teaching. All undergraduate programs of instruction at the University are built on a program of general education. The objectives of general education carry through the undergraduate subject major, as students refine and apply their skills and discover the relationships among

fields of study. At every level, students enjoy close contact with individual faculty members who are dedicated to research and scholarship; this is an advantage for students, because active scholars and researchers teach by sharing their own learning.

Research. The activity of research embraces all the arts and sciences at the University: it is an integral part of both undergraduate and graduate programs. In doctoral study, and in many master's programs, thesis research is a primary mode of learning. As a land-, sea-, and space-grant institution, the University of New Hampshire has a special obligation to conduct applied research in the areas of agriculture, marine sciences, and engineering, and to disseminate the findings to the state and nation.

Public Service. The University fulfills its special responsibility for the welfare of the state through UNH Cooperative Extension, and through research and consultation on particular needs of New Hampshire citizens. The University is dedicated to collaborative learning inside and outside the classroom.

The UNH Library

The UNH Library consists of the main Dimond Library and four specialized branch libraries. In addition to more than a million volumes and 6,000 periodical subscriptions, the library has an extensive government documents collection, maps, sound recordings, compact discs, video cassettes, DVDs, and a Special Collections and University Archives section with rare books, manuscripts and University publications and papers. The library offers extensive electronic resources including indexes in a wide variety of subject areas, databases supplying full-text periodical and newspaper articles, and statistical data sets. Professional library faculty and staff provide expert service to people seeking information or research assistance.

The library is a member of the elite Boston Library Consortium, whose members include some of the most well-known research institutions in the nation. Through the consortium, the UNH community has access to millions of volumes via interlibrary loan and on-site visits to member libraries. In addition journal articles and books not available through the BLC can be delivered quickly through an efficient interlibrary loan operation.

The Dimond Library offers three grand reading rooms, seating for 1,200, 21 miles of shelving for books, a café, and the Dimond Academic Commons (DAC). The DAC features "one-stop" shopping for information needs, including reference assistance, IT help, high-tech equipment (including the loan of video and audio equipment), and collaborative work space. Wireless access, computer workstations, and laptop connections are available

throughout the building.

The four branch libraries specialize in science, mathematics, and engineering. The Biological Sciences Library is located in Kendall Hall, the Chemistry Library is in Parsons Hall, the Engineering/Mathematics/Computer Science Library is in Kingsbury Hall, and the Physics Library is in the recently renovated DeMeritt Hall. All branches have reserve materials, reference collections, circulating collections, periodicals, and electronic resources. All branch materials are included in the UNH Library catalog.

For more information on Dimond and the branch libraries, visit www.library.unh.edu <<http://www.library.unh.edu/>> .

The Campus

The home of the main campus of the University is Durham—one of the oldest towns in northern New England—near the picturesque seacoast of New Hampshire. The 200-acre campus is surrounded by more than 2,400 acres of fields, farms, and woodlands owned by the University. A stream flowing through a large wooded area in the middle of campus enhances natural open space among the buildings. College Woods, on the edge of campus, includes five miles of well-kept paths through 260 acres of forest.

During the last decade, major building and renovation projects have revitalized the UNH campus while maintaining its traditions. In 2002, the University celebrated the completion of Mills Hall, its newest and very beautiful residence hall; 2003 saw completion of the new Holloway Dining Commons. Renovations of Murkland and Congreve Halls have also been completed. The recent Kingsbury Hall expansion gives science and engineering students new project space, a modern lab wing, and high-tech classrooms. In 2007, Demeritt Hall was torn down and rebuilt in the same location, reusing approximately 95 percent of the original materials to create a state-of-the-art physics building.

Accreditation

The University of New Hampshire is accredited by the New England Association of Schools and Colleges, Inc., which accredits schools and colleges in the six New England states. Accreditation by the association indicates that the institution has been carefully evaluated and found to meet standards agreed upon by qualified educators. Specialized programs of study are also accredited by various professional organizations.

Veterans and their eligible dependents may apply for educational benefits before the start of each semester. For information, contact **Lonn Sattler**, e-mail lonn.sattler@unh.edu,

UNH veterans coordinator, or call (603) 862-1595.

The University supports the efforts of secondary school officials and governing bodies to have their schools achieve regional accredited status to provide reliable assurance of the quality of the educational preparation of its applicants for admission.

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[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

General Information

[Introduction](#)
[Admission](#)
[Financial Aid](#)
[Computing and Information Services \(CIS\)](#)
[Campus Life](#)
[Programs and Services for Students](#)
[Health Services](#)
[Fees and Expenses*](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University

Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« Admission

UNH welcomes campus visitors. Campus tours are led by student admissions representatives who provide a general overview of academic programs and campus life opportunities.

Professional staff members are available to provide information about the criteria used by the Admissions Committee in reviewing candidates and to address specific concerns. For further information or to schedule a campus and/or group information session, visit the Admissions Web site at www.unh.edu/admissions/visit. Registration is required.

Admission Criteria

Admission to a bachelor's degree program is based upon successful completion of a strong secondary school program of college preparatory coursework. Primary consideration is given to the academic record, as demonstrated by the quality of the candidate's secondary school course selections and achievement, recommendation, and the results of the SAT and/or ACT exam. Consideration is also given to character, initiative, leadership, and special talents.

Candidates must, at a minimum, present at least four years of English, three years of mathematics (Algebra I, Geometry, and Algebra II), three years of laboratory science, three years of social science, and two years of study in a single foreign language. Three years of a single foreign language are preferred. Recommended mathematics preparation includes the equivalent of Algebra I, Geometry, Algebra II, and Trigonometry/Advanced Math.

Students who plan to specialize in engineering, biological/physical science, mathematics, or forestry should present at least four years of mathematics including trigonometry, as well as laboratory coursework in chemistry and/or physics. Students pursuing business-related studies also should have completed four years of mathematics including trigonometry. For students planning to major in health-related disciplines, four years of math, as well as laboratory courses in biology and chemistry, are strongly recommended.

Applicants may indicate a prospective major on the application for admission. An undecided

applicant may apply for admission into a bachelor's program as an "undeclared" student to any one of the University's five college divisions in Durham or at UNH Manchester. For information concerning bachelor and associate degree programs offered through UNH Manchester, visit www.unhm.unh.edu; for information concerning the associate degree programs at the Thompson School of Applied Science visit www.thompsonschoo.unh.edu.

Many University students request a change in major during their undergraduate years, and most are approved. These changes are possible after a student has been at the University for at least one semester and has permission from the appropriate college dean and department chairperson. In recent years, however, the University has not always been able to honor all requests for a change of major, most notably into nursing or occupational therapy.

Admission Test Requirements

All candidates for admission to bachelor's degree programs are required to submit the results of the SAT or ACT exam (including writing). Scores must be submitted electronically to UNH by the testing agency. SAT subject tests are not required, but a foreign language subject test may satisfy the foreign language requirement of the bachelor of arts degree. Required scores vary by test.

International students whose primary language is not English must submit the results of a Test of English as a Foreign Language (TOEFL). The recommended minimum TOEFL score is 213 (computer version) or 550 (paper version) or 80 (Internet version). UNH also accepts the (IELTS) International English Language Testing System English Language proficiency examination in lieu of TOEFL; the minimum acceptable proficiency grade is 6.5.

Music Candidates

Candidates applying for programs in the Department of Music must make arrangements with the department chairperson for an audition (603) 862-2404. Details regarding audition requirements may be obtained from the department, or may be found on the Department of Music Web site at www.unh.edu/music.

Admission Deadlines

The Admissions Office welcomes high school students who seek fall semester first-year admission to apply any time after the start of the senior year and before the February 1 regular decision deadline. Admission notifications are provided on a continuous basis through April 15.

Accepted candidates are required to confirm their intention to enroll with the payment of an enrollment fee by May 1. An additional deposit is required by May 1 to reserve on-campus

housing.

The review of first-year candidates begins as soon as a complete application (including official grade reports through the first marking period of senior year and a confirmed course schedule, the results of the SAT or ACT, and a letter of recommendation) is on hand. To apply as an early action applicant (a non-binding “early reading”), candidates must submit admission applications by November 15. In some cases, the Admission Committee will request senior mid-year grade reports in order to make a final admission decision.

All offers of admission are considered conditional and are subject to the verification of satisfactory senior year achievement when final high school transcripts are reviewed by the Admission Committee.

Deferred Admission

The University considers applicants for deferred admission, which enables students to reserve a space at the University while taking time off from school for work or travel. With few exceptions, UNH will not approve deferral requests in which the student will be taking college coursework elsewhere. Requests for deferrals must be put in writing and sent to the Admissions Office (admissions@unh.edu). The University may not be able to offer deferred admission in certain program areas.

Advanced Standing

The University recognizes outstanding secondary school work by means of advanced placement and credit for those who have taken enriched or accelerated courses before entering college. Applicants qualify for such credit by successfully completing coursework for college credit and satisfactory achievement on University approved placement examinations, including the College Board Advanced Placement (AP) Tests, International Baccalaureate (IB) Higher Level Examination Test Results, or through the College Level Examination Program (CLEP). Students should have official results sent directly to the Office of Admissions.

The University accepts AP Tests in every subject area, with credit and course equivalency based on the score achieved. Visit admissions.unh.edu/admissions/ap.html for further information.

The University awards 8 semester credits for each IB Higher Level Examination Test Result of 5, 6, or 7. The University recognizes up to 32 semester credits of CLEP General Examination tests which may be applied as elective credit only. Scores must be 500 or better in the

humanities, natural sciences, and social sciences-history exams. The minimum score for mathematics is 500 and for the English exam with essay, 500. Subject exams, when applicable, may be used to satisfy either departmental or general education requirements. UNH does not accept all CLEP subject exams.

Maximum credit accepted toward a bachelor's degree for all credit by exam and advanced placement testing is 64 semester hours.

Associate Degree Candidacy

The University accepts candidates who have demonstrated ability and motivation for learning through academic achievement, work experience, and/or military service for associate in applied science degree programs.

Students may be considered for admission to associate in applied science degree programs offered by the University's Thompson School of Applied Science in Durham as well as associate in arts or science degrees at the Manchester campus. Candidates applying as high school seniors must submit the application, secondary school record, and results of the SAT or ACT, both with essay results. Students granted first-year admission to the Thompson School are eligible to live in a University residence hall.

Eligibility for Degree Candidacy

Applicants may be candidates for any undergraduate degree offered by the University. However, applicants having a bachelor of arts (B.A.) degree will not be admitted into a program of study that awards the same degree (e.g., B.A. History and B.A. Zoology). Applicants can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Applicants may also be admitted into a program awarding a different degree (e.g., B.A. History and B.S. Biology; or B.A. History and A.A.S. Applied Business Management).

Readmission

An undergraduate who withdraws, does not register for UNH coursework in a given semester, or is suspended or dismissed from the University thereby terminates degree candidacy and must apply for readmission by the following deadlines: fall semester, June 1; spring semester, November 1. Readmission applications are processed in the Office of Admissions; however, decisions regarding readmission are made in consultation with the Division of Student and Academic Services and the dean's office of the University college division to which the student is applying.

Before seeking readmission, students on academic suspension must remain away from school for at least one semester. Suspended students should include a statement about their readiness to resume University work with their application.

Only under extraordinary circumstances will students be readmitted after dismissal for academic reasons. Applications submitted by dismissed students are reviewed by the University's Academic Standards and Advising Committee.

It may not be possible for readmission applicants to enroll in programs with established enrollment limitations.

Transfer Students

UNH encourages applications from transfer students. Admission consideration includes review of course selection, academic achievement, and the extent to which that selection addresses the University's general education requirements. Transfer credit is awarded for completed courses taken at an institution that is fully accredited by one of the regional accrediting associations with a grade of C or better, provided those courses are comparable to courses offered at UNH. Each course must carry at least three semester credits and receive a letter grade to qualify for general education consideration.

Students enrolled in one of the University's associate degree programs who desire admission to a bachelor's degree program at UNH apply as transfer students through the Office of Admissions.

Some programs may have enrollment limitations. Transfer students may contact the Department of Housing (603) 862-2120 to determine the availability of on-campus housing or the Office of Commuter Services at www.unhmub.com/off_campus for assistance with off-campus housing. In most situations, on-campus housing is not guaranteed to transfer students.

New England Regional Student Program

The University participates in the New England Regional Student Program, in which each state college and university in New England offers certain undergraduate majors to students from other New England states. Under this program, admitted students pay the UNH in-state tuition plus an additional percentage. Students must indicate on the application the specific major for which they are applying. Information about the curricula may be obtained from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111, www.nbhe.org, or call (617) 357-9620. Visit admissions.unh.edu/admissions/nersp.html for available UNH majors through this program.

Full-Time Special Student Status

UNH offers a special student classification for persons who wish to participate in University coursework on a full-time basis without entering a degree program. In evaluating requests for special full-time status, the Office of Admissions generally applies the same criteria used in the review of applicants for admission to degree candidacy. Full-time special students have full access to academic support services but are not eligible for University-based financial aid. Students must maintain satisfactory achievement to continue with University coursework. Full-time special (non-degree) students register for coursework through the Registrar's Office.

Resident Status

All students attending any division of UNH in any capacity shall be charged tuition at a rate to be determined by their primary, legal domicile. Those domiciled within the state of New Hampshire pay the in-state rate. Those domiciled elsewhere pay the out-of-state rate.

Students are classified as residents or nonresidents for tuition purposes at the time of admission to the University. The decisions, made by the Office of Admissions, are based upon information furnished in students' applications and any other relevant information.

All enrolling students living in New Hampshire are required to submit a notarized statement to the effect that they, if financially independent, or their parents, if financially dependent, have been legally domiciled in New Hampshire continuously for a period of at least twelve months immediately prior to registering for the term for which the student is claiming in-state status. Students admitted from states other than New Hampshire or from foreign countries are considered nonresident throughout their attendance at the University unless they have acquired bona fide domicile in New Hampshire.

If students maintain residency apart from that of their parents, they must clearly establish that they are financially independent and that their residence in New Hampshire is for some purpose other than the temporary one of obtaining an education at the University. To qualify for in-state status, students must have been legally domiciled in New Hampshire continuously for a period of at least twelve months prior to registering for the term for which in-state status is claimed.

The burden of proof in all cases is upon the applicant. The University reserves the right to make the final decision concerning resident status for tuition purposes.

A copy of the rules governing residency may be obtained from the Office of Admissions.

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[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

General Information

[Introduction](#)

[Admission](#)

[Financial Aid](#)

[Computing and Information Services \(CIS\)](#)

[Campus Life](#)

[Programs and Services for Students](#)

[Health Services](#)

[Fees and Expenses*](#)

[UNH Affirmative Action Statement](#)

[University Calendar](#)

[Campus Map](#)

[Trustees and Administrative Officers](#)

[Enrollment Statistics, Fall Semester](#)

[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)

[Degrees and Major Programs of Study](#)

[Program Abbreviations](#)

[Special University Programs](#)

[Course Descriptions](#)

[Time and Room Schedule](#)

[Faculty Listing](#)

Other University

Programs

[Graduate School](#)

[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« [Financial Aid](#)

The University Financial Aid Office assists students who are unable to meet educational expenses entirely from their own family resources. Aid is available in the form of grants and scholarships, loans, and part-time employment. The financial aid brochure gives program information, application procedures, and deadlines.

In many communities, scholarships and loans are available locally. School principals and guidance counselors have information about these sources of assistance, which are available to both high school seniors and adult students.

Before applicants may be considered for assistance by the University, they must submit the Free Application for Federal Student Aid (FAFSA). Applicants will find this at www.fafsa.ed.gov.

The financial aid application deadline for aid awarded by the University is March 1. This is the date by which your fully completed FAFSA must be received by the federal processor.

The importance of meeting this deadline cannot be overstated. While there are some types of aid (e.g., Pell Grants and Stafford Loans) for which you may apply after this deadline, it is likely that you will receive substantially less total aid if your application is late. For the past several years, applicants applying after the deadline did not receive any aid awarded by UNH (SEOG, tuition grant, Perkins Loan, or work study).

It is the University's position that the student applicant is accountable for the accuracy and timely submission of the FAFSA. We realize that in most cases a student's parent(s) also participates in completing the form. However, it is the student who is ultimately responsible for monitoring the application process. Students should not wait until being admitted to the University before applying for financial aid.

Note: There is reference on the FAFSA to a "deadline" of May 1. Do not be misled by this date. It is not the financial aid deadline at UNH or most other colleges.

Grants and Scholarships

Admitted undergraduate degree candidates who will attend UNH on a full- or part-time basis may be considered for tuition grants and University scholarships. The basic consideration is financial need, although some scholarships are awarded on the basis of scholastic attainment, participation in extracurricular activities, or meeting specific requirements of a donor.

The University participates in the federally sponsored Federal Supplemental Educational Opportunity Grant Program, which is designed to assist needy students who are admitted degree candidates.

Federal Pell Grant Program

Students may apply directly to the federal government for a Pell Grant using the FAFSA. Students must reapply each year for a grant.

Loan Programs

Two loan funds are administered by the University: UNH Loan Fund and Federal Perkins Loans. Admitted undergraduate and graduate degree candidates who will attend the University on at least a half-time basis may be considered for these loans. Financial need must be clearly demonstrated, and loans may be used only for educational expenses.

Most states now have higher education loan plans established by the Higher Education Act of 1965. Contact your local bank, other lender, or the Financial Aid Office for information.

Part-Time Employment

The Federal Work-Study Program, both academic year and summer, assists students who, as determined by the Financial Aid Office, need financial assistance for their educational expenses. Admitted undergraduate and graduate degree candidates attending at least half time are eligible for consideration.

Students who do not qualify for the Work-Study Program may find part-time employment on or near campus.

ROTC Scholarships

Reserve Officer Training Corps scholarships are offered on a competitive basis by both the Army and the Air Force. Entering freshmen may compete for four-year scholarships during the last year of high school. A variety of scholarships are also available to students already attending the University.

Scholarships pay up to full tuition, all mandatory fees, and required textbooks. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Finally, students with a four-year or three-year ROTC scholarship compete for a room and board grant for the entire time they are on the scholarship.

For more information, contact the Admission Officer: Army ROTC, at (603) 862-107, or the Air Force, at (603) 862-1480.

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UNH is part of the University System of New Hampshire.

[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

General Information

[Introduction](#)
[Admission](#)
[Financial Aid](#)
[Computing and Information Services \(CIS\)](#)
[Campus Life](#)
[Programs and Services for Students](#)
[Health Services](#)
[Fees and Expenses*](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« [Campus Life](#)

At the University of New Hampshire, getting involved is a big part of campus life. Inside the classroom and beyond, UNH students bring energy and passion to everything they do.

Housing

The University offers students a variety of housing options, including small halls of approximately 100 students to medium halls and large halls (ranging from 400 to 600 students). Our newest residence halls offer students suite style living ranging from four to eight person suites. Upperclass undergraduates may also choose from either of two on-campus apartment complexes: the Gables and Woodside apartments. These apartment complexes are designed to meet the more independent and self-reliant life-styles of upperclass students. Theme-based housing is offered in many buildings on campus. Some of our programs are located in the minidorms, where each house focuses on a theme, and Smith Hall, where the focus is on international and intercultural activities. There is also a residence hall for students participating in SELF (Students Electing to Live Free), a program whose participants have chosen not to use alcohol or any chemical substances.

The Department of Housing and the Residential Life Office are committed to providing a living environment that maintains high standards of health and safety. Full-time professional directors manage the residence halls and apartments and work with a student staff to offer special programs and enforce hall standards.

Undergraduate University housing is available to all full-time baccalaureate degree candidates and to associate in applied science degree candidates. Offers of housing to associate in arts degree and Division of Continuing Education students are made on a case-by-case basis. Students are not required to live on campus.

Offers for on-campus housing are sent to all accepted new freshmen. Transfer and readmitted students may apply for housing upon admission to the University. Offers will be made on a space-available basis. All application materials are available at the Department of Housing

located in Pettee House.

For more information, contact the Department of Housing (603) 862-2120 or visit the department's Web site at www.unh.edu/housing/.

Dining

UNH Dining is committed to exceeding the expectations of our guests and takes pride in maintaining our position as a leader in the food service industry. The freshest ingredients, flexible menus, various meal plans, and special events have earned us over 20 awards presented by the National Association of College and University Food Services.

Flexible meal plans give students the option of eating at one of the three dining halls or using Dining Dollars or Cat's Cache at one of nine retail locations around campus. Our three dining halls serve all-you-care-to-eat meals in comfort. Menu choices include popular favorites such as pizza, burgers, and stir-fry as well as vegan and vegetarian options, a well-stocked deli, and tremendous salad bars. Fresh-baked breads, desserts, and other selections also are available.

Students who have dietary needs or concerns can meet with a registered dietician and executive chef to review menu selections. Parents can send goodie packages or personalized birthday cakes to students.

As a land-grant university, UNH is committed to supporting and advancing the state's agricultural economy. Small, family farms are not only part of the state's heritage, but play a vital, active role in current economy and culture. In recognition of the many benefits a vibrant agriculture affords in New Hampshire, our sustainability efforts raise awareness and educate students, staff, and community members about the local agricultural landscape and its role in sustaining physical and economic health and well-being, now and in the future.

Memorial Union Building

The Memorial Union Building (MUB) is the University's community center and is the official war memorial of the state of New Hampshire. The MUB provides opportunities for student involvement and offers space for programs, meetings, and study, as well as for major public events, movies, and other entertainment. Students, faculty, and staff serve on the Memorial Union Board of Governors and work with the director to set policies and establish the budget for the building's operation. The original building was a gift from UNH alumni and first opened its doors in 1957. Currently, the MUB has complete wireless capabilities in all public spaces and meeting rooms.

Headquartered in the MUB are the Information Center; Office of Multicultural Student Affairs, two movie theaters; the UNH Copy Center; the UNH Bookstore; the Ticket Office; specific

lounge/study space for nontraditional, commuter, and graduate students; and Granite Square Station & Shipping, which provides undergraduate mail boxes and package shipping services. Computing and Information Services provides a computer cluster. The UNH Computer store is located on the second floor. The Games Room is equipped with pool and ping pong tables. The Entertainment Center and Wildcat Den provide a comfortable atmosphere for relaxing with live acoustical performances as well as socializing and study space. The Food Court offers expanded dining options. The Student Senate Office, Graduate Student Organization, WUNH-radio, The New Hampshire (the student newspaper), and more than 75 other student organizations also have office space in the MUB.

The Leadership Center (MUB 122) currently serves as the hub for student involvement at the University of New Hampshire and is home to four offices: Greek Life, Off Campus & Commuter Student Services, Student Organization Services, and Project LEAD. Whether a student is interested in joining a student organization or starting a new one, participating in one of many leadership development programs, or simply learning about campus resources—this is the place! Student and professional staff members oversee the University recognition process for all student organizations and are available for advising or training on topics related to organizational development and program planning.

Off-Campus and Commuter Student Services strives to connect the half of the student population who do not live in University housing to campus. Programs, such as Good Morning Commuters and the Commuter Connection listserv, bring information to students about campus happenings, events, and activities. Off-Campus and Commuter Student Services also helps students understand the ins and outs of moving off campus by providing educational sessions in the residence halls.

Recognized student organizations and University departments are encouraged to use rooms in the MUB. Reservations can be arranged via the scheduling Web site www.unh.edu/mubscheduling, calling MUB Scheduling at (603) 862-1526, or stopping in the Office of the Memorial Union to fill out a form. For a complete listing of Memorial Union programs, services, and events, phone the Information Center at (603) 862-2600 or visit the Web site at www.unhmub.com.

Cultural Events

Students at the University can participate in a rich cultural life. Numerous lectures, films, concerts, exhibitions, meet-the-artist receptions, master classes, dance performances, and theatrical productions are offered throughout the year. The UNH Celebrity Series, the Art Gallery, and the Departments of Music, Theatre and Dance, and Art and Art History bring artists of international stature to campus.

The fine and performing arts are an integral part of undergraduate education. Programs are frequently incorporated into coursework. For further information or a brochure call the numbers listed below:

Department of Music, (603) 862-2404

The Art Gallery, (603) 862-3712

Art and Art History, (603) 862-2190

Theatre and Dance, (603) 862-2919

UNH Celebrity Series, (603) 862-3242 or www.unh.edu/celebrity

Traditional Jazz Series, (603) 862-2404

Memorial Union Ticket Office, (603) 862-2290 or www.unhmub.com

Campus Recreation

Many opportunities for recreational and leisure activities, regardless of skill or ability, are offered through the Department of Campus Recreation. The Hamel Student Recreation Center is available to all full-time matriculating students and recreation pass holders, seven days a week (excluding UNH holidays and shutdowns). The center offers participants two multipurpose courts, a group exercise studio, club/martial art studio, an 8,000 square foot fitness center with more than 100 exercise stations (some with TV monitors), a cardio-theater area including five TVs, three basketball/volleyball courts, an indoor track, a lounge, several classrooms, locker rooms, towel and lock service at the equipment room, saunas, and synthetic sports fields. Additional fitness space is anticipated in the near future. Recently, a climbing boulder was added for those perfecting their climbing skills. Many outdoor adventure trips are also available each year.

The Department of Campus Recreation offers a variety of activities designed to make it easier to reach personal **fitness** goals and have fun. Participants may take part in one of the many group exercise classes, such as step aerobics, Reebok cycling, water aerobics, or cardio kickboxing. Other opportunities include yoga, pilates, racquetball, personal training, massage therapy, or running in the Homecoming 5K Race. Noncredit courses are also offered including CPR and First Aid, and many more.

The **intramural sports** program consists of 25 different sports and activities offered to co-rec, men's and women's teams. Intramural sports are organized, and competitive leagues and tournaments are officiated by trained students. These activities generally take place Sunday through Thursday and are 3-7 week leagues or short elimination tournaments.

The Department of Campus Recreation assists special interest groups or **sport club** teams to reflect the varied recreation and cultural preferences of campus community members. Some of the 27 clubs are intensely competitive, requiring a daily commitment to workouts and conditioning. They compete either on an intercollegiate basis with New England teams or

sponsor University tournaments. Other clubs meet on a casual “come when you can” basis. The wide variety of clubs can meet every interest or skill level.

Campus Recreation's **aquatics program** oversees the Swazey indoor pool (located in the Field House) and the UNH outdoor pool. The indoor pool is an 8-lane by 25-yard facility with 1- and 3-meter diving boards. Offerings include many open swim hours, water aerobics classes, American Red Cross courses and swim lessons, masters swimming, and many other programs/events/rentals.

The UNH outdoor pool is located beside the recreation center and is operated seasonally and hosts several special events throughout the summer. Offerings include private and group swim lessons, masters swimming, birthday party rentals, and other special events.

In addition to the Recreation Center, the Department of Campus Recreation manages the Whittemore Center Arena. Open skating for students and employees is available as well as opportunities for sport clubs and intramurals for practice and competition.

Campus Recreation manages a large outdoor recreation facility on Mendum's Pond in Barrington, N.H. with its own sailing and canoe center, runs a children's camp (Camp Wildcat) in the summer, and supports the crew boat house. One of the largest student employers on campus, the Department of Campus Recreation provides opportunities for more than 350 student employees in a variety of positions. For further information call (603) 862-2031 or visit campusrec.unh.edu.

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About UNH

General Information

[Introduction](#)
[Admission](#)
[Financial Aid](#)
[Computing and Information Services \(CIS\)](#)
[Campus Life](#)
[Programs and Services for Students](#)
[Health Services](#)
[Fees and Expenses*](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« [Programs and Services for Students](#)

From international education to residential life, academic advising to internships and writing, the University offers programs and services to help every student get the most out of his or her college experience.

Advising Services

Every UNH student is assigned an academic adviser, who provides help in choosing courses and planning a program of study. Each college within the University also has an advising office. Other sources of help, for academic or personal problems, are described below.

Center for Academic Resources (CFAR)

The Center for Academic Resources offers a comprehensive program of academic-related services to undergraduate students. Participants work on an individual basis or in group seminars with trained staff members to improve their academic performance and enhance their educational experience. The center offers learning skills instruction, drop-in subject area tutoring, study groups, computer usage, course information, clarification of academic goals, personal advising, and referral. The center serves approximately 1,600 students a year. There is no cost associated with these services.

Additional services are available through the Student Support Services component for students enrolled in four-year programs who meet income and disability criteria. These services include individualized subject-area tutoring, support for students with learning disabilities, graduate school advising and preparation, computer support, and scholarship search assistance. Student Support Services is 81 percent federally funded through a \$303,867 TRIO grant from the U.S. Department of Education. UNH contributes 19 percent or \$69,342 as matching funds.

Located at Wolff House (8 Ballard Street, next to Health Services), the center is open weekdays from 8:00 a.m. to 4:30 p.m. and evenings by appointment. For further information call (603) 862-3698 (voice/TTY), fax (603) 862-0840, or visit the Web site at www.cfar.unh.edu.

Counseling Center

The Counseling Center offers confidential professional consultation, individual and group therapy, and educational workshops for a broad range of emotional, psychological, and interpersonal concerns. Services are provided for all students who have paid their Health Services/Counseling fee and who may be facing a major crisis, confusion, depression, family difficulties, or other personal problems.

The center provides a scheduled intake system. Intake appointments can be made over the phone or in person. In addition, emergency services are offered by the Counseling Center during regular business hours, 8:00 a.m.-5:00 p.m., Monday through Friday, and after hours by calling the Counseling Center at (603) 862-2090. When necessary, the center's staff assists with outside mental health referrals.

The staff, which includes licensed psychologists, counselors, and consulting psychiatrists, is committed to the welfare and development of UNH students. The staff is available for consultation with faculty, administrative staff, and parents on matters relating to the welfare of students. The Counseling Center is fully accredited by the International Association of Counseling Services, Inc. and offers a predoctoral internship training program that is accredited by the American Psychological Association.

All information about a student's visits to the Counseling Center is confidential and cannot be released without the written permission of the student.

For information or to schedule an appointment, call (603) 862-2090 or visit the Counseling Center's Web site at www.unhcc.unh.edu/index.html.

Athletics, Men's and Women's

UNH participates in the following intercollegiate men's athletics programs: basketball, cross country, football, hockey, skiing, soccer, cross country, and track and field. UNH also participates in the following intercollegiate women's athletics programs: basketball, cross country, field hockey, gymnastics, ice hockey, lacrosse, skiing, soccer, swimming, track and field, and volleyball. An undergraduate ID provides access to sporting events; men's hockey requires picking up a ticket. (See also Campus Recreation.)

Cat's Cache

Cat's Cache is a debit account accessed with a UNH ID card. Cat's Cache is a convenient way to make purchases on-campus at many locations including all UNH dining operations, the UNH

bookstore, and most vending machines, the Acorns Restaurant at the New England Center, the pro shop at the Hamel Recreation center, and many off-campus merchants. There are no minimums, no fees, and no penalty for withdrawals. Account balances carry from semester to semester and year to year. Cat's Cache is available to all campus community members including students, faculty, and staff.

All UNH ID cardholders have a Cat's Cache account. To make a deposit, use one of our convenient account management centers with cash or a credit or debit card, at onlinecardoffice.com/unh with a credit or debit card, or in person at the Dining and ID Office located in Room 101 of Holloway Commons with cash or a check. You may also make deposits through the on-line remittance form during eligible periods.

Cat's Cache is intended for purchases and not for cash withdrawals as an ATM card would allow. You cannot withdraw cash from your account unless you withdraw the entire amount. There is a limit of two withdrawals per semester. For more information about Cat's Cache, visit www.unh.edu/dining and follow the Cat's Cache links.

Disability Services for Students

The University of New Hampshire (UNH) and the Office of Disability Services for Students (DSS) are committed to creating equal access for all UNH students with disabilities. It is our goal to help meet the needs of individuals registered and documented through the office. The University will make reasonable accommodations to promote student independence and accessibility to a full range of college activities at UNH.

We strive to see that no student is excluded or discriminated against in participating in any program, function, or activity, while maintaining the highest level of academic integrity. We advocate responsibility for an accessible and holistic learning environment, through removal of informational, physical, and attitudinal barriers.

All UNH students with disabilities who anticipate the need for reasonable accommodations and services must self-identify and provide appropriate documentation to Disability Services for Students. Please call to speak with a DSS professional staff member as soon as possible after acceptance to facilitate coordination of available services. Documentation requirements are available at www.unh.edu/disabilityservices. Disability Services for Students is located in the Memorial Union Building, room 118, (603) 862-2607 (voice/TTY); (603) 862-4043 (fax.); or e-mail disability.office@unh.edu.

General Information for Students with Disabilities

Students seeking academic accommodations, services and accessibility should contact

Disability Services for Students (DSS) at (603) 862-2607 (voice/TTY).

Most major buildings have ramps and many have elevators and adapted restroom facilities. Contact DSS or Affirmative Action with questions about building facilities.

Students with disabilities who require accessible parking permits for on-campus use must seek the permits from the Department of Motor Vehicles (DMV) of their home state (that is, the state where their driver's license was issued). Applications for New Hampshire accessible permits are available at Parking Services. Processing of New Hampshire permits, however, must still be done by the DMV of the student's home state. Please note: All students using accessible parking permits must still purchase either a commuter or on-campus resident pass. Questions about temporary accessible parking should be directed to Parking Services at (603) 862-1010.

For information about dietary restrictions and needs due to a diagnosis or disability, please see <http://www.unh.edu/dining/nutrition>.

Students with disabilities who need accessible housing and plan to live in campus residence halls should contact DSS early to allow for timely arrangements of appropriate rooms and location.

UNH has specifically equipped vans with lifts which transport students on campus to other locations along the Wildcat transit routes. These are known as Wildcat Access Vans. For information on this service or for special arrangements possible during periods of inclement weather; please contact Disability Services for Students (603) 862-2607.

All B.A. candidates must fulfill the University's foreign language requirement by the end of their sophomore year. A student with a documented disability may petition the foreign language board for course substitutions on the basis that the disability will prevent him or her from successfully mastering the foreign language requirement. Students wishing to pursue this process must contact Disability Services for Students to learn about the process.

No otherwise qualified individual may be excluded from or denied access to any program, course of study, or any other offering of the University, solely on the basis of a disability. Concerns regarding the institution's compliance with the Americans with Disabilities Amendments Act (ADAA) of 2008, or Section 504 of the Rehabilitation Act of 1973 should be addressed to the ADA/504 Compliance Officer, in the Affirmative Action Office at (603) 862-2930 (Voice/TTY).

Greek Life at UNH

Greek life at UNH has a long and rich history, with the first fraternity founded in 1881 and the first sorority founded in 1913. Today the Greek community at UNH has more than 1,000

members, representing about eight percent of the student body. The Greek community is made up of five National Panhellenic Conference sororities, nine North American Interfraternity Conference fraternities, a National Multicultural Greek Council sorority, an agricultural sorority and a co-ed society. The governing bodies for the majority of these organizations are the Interfraternity and Panhellenic Councils and the United Greek Association. As values-based organizations, fraternities and sororities are committed to intellectual growth, leadership and campus/community involvement, social development, philanthropy and community service, and friendship.

Believing that involvement in or with a Greek organization can promote learning, development, and growth, the Office of Greek Life aims to cultivate a values-based and inclusive Greek community of excellence at UNH. This office is staffed by a full-time coordinator and several student interns. More information about the UNH Greek community can be found by visiting the Office of Greek Life at the Memorial Union Building Leadership Center (Room 122), visiting www.unhmub.com/greek, or by calling (603) 862-1002.

International Students and Scholars

The Office of International Students and Scholars (OISS) promotes international education at UNH by facilitating the enrollment and employment of foreign nationals and by providing them with essential support services. The OISS coordinates programs which encourage interaction between the international, campus, and local communities, thereby fostering awareness and appreciation of other cultures. It is the responsibility of the OISS to ensure University compliance with U.S. immigration and employment regulations and to assist international students, exchange scholars, faculty, and staff in the achievement of their academic and professional goals.

The OISS staff provides counseling, information on University policies, administrative support, and referral services. A variety of social and educational programming activities are offered, including orientation for incoming students, faculty, and staff, and others designed to enhance student interaction with the broader community and provide opportunities for sharing in family events. For more information on programs and services, visit the OISS Web site at www.unh.edu/oiss. To schedule an appointment, call (603) 862-1288 or send e-mail to OISS@unh.edu.

All international students are encouraged to maintain contact with the OISS and are required by law to report changes of address, academic program, or source of educational funds.

Multicultural Student Affairs

The Office of Multicultural Student Affairs (OMSA) creates opportunities for people to

participate in an inclusive community and to explore and understand diversity, injustice, and equity. Their work is grounded in an understanding of diversity that includes people of all abilities, ages, ethnicities, genders, nationalities, races, religions/spiritual traditions, socioeconomic classes, and sexual orientation.

Providing support and development for students of color (Asian/Asian American/Pacific Islander, Black, Middle Eastern, Latino/a, Native American, Biracial/Multiracial), and for lesbian, gay, bisexual, transgender, questioning (LGBTQ), and allied students is at the heart of their work.

OMSA offers cultural and educational programs; offers opportunities for exploring leadership potential within a multicultural context; provides referrals to obtain support and help from other people and programs on campus; gets students connected; helps students to learn more about race, sexuality, and gender; responds to acts of intolerance; and helps all members of the University community to feel safe and welcome at UNH.

The office provides computers for student use, social and study space, a media library, and educational resources for faculty and staff. Staff members include the director, the LGBTQ coordinator, and a multicultural coordinator. For more information, stop by the office in room 327 of the Memorial Union Building (MUB), phone (603) 862-2050, or e-mail omsa.info@unh.edu.

Nontraditional Student Services

Since the 1970s, the nontraditional student population at the University of New Hampshire has been an active, hardworking group. These students remain dedicated to their education, to their families, and to helping one another deal with issues and concerns often experienced by those having challenging lives apart from a university setting.

To assure that the University and its activities respond to the needs, desires, and lives of nontraditional students, Commuter Student Services provides support, resources and services.

Commuter Student Services is located in the Leadership Center, within the Memorial Union Building, room 122. Information about services, resources, campus and local communities can be found at www.unhmub.com/off-campus or call (603) 862-0303.

Office of Conduct and Mediation

The Office of Conduct and Mediation administers the student conduct process. Through the Student Code of Conduct, the office maintains community standards of behavior that are intended to preserve and protect the University's educational mission of teaching, research,

and public service, as well as promote the student's academic achievement and personal development. To attain these aspirations, students must live, work, and learn in an environment of civility and respect where both rights and responsibilities are deeply valued. For the University community to thrive, the rules of conduct must be clear and understood by all members of the community. The Student Code of Conduct codifies and explains community standards of behavior and responsibility, as well as the rights and remedies accorded to all members of the community. It is available online at www.unh.edu/student/rights.

More specific information regarding the Student Code of Conduct and the conduct process can be found in *Student Rights, Rules and Responsibilities*. For more information, please call the Office of Conduct and Mediation at (603) 862-3377, or visit the Web site at www.unh.edu/ocm.

The UNH Mediation Program provides community members with an opportunity to talk about and resolve disputes in an alternative and non-adversarial manner. Students or University community members or organizations can access mediation or conflict resolution training or consultation by self-referral. Mediation and/or conflict resolution training or consultation is also available as an alternative to filing conduct charges against a student in some situations. Mediation is provided by trained neutral mediators, who are in charge of and guide the process in a neutral setting and confidential process. The mediators are not involved in the dispute, do not take sides, and do not make any decision for the disputants. The mediators are part of this community-based mediation program and are supervised by the Office of Conduct and Mediation Programs. Some examples of situations appropriate for mediation include issues arising out of relationships such as roommate, friendships, dating partners, neighbors, teammates, organization members, landlord/tenants, etc. Through mediation, disputants are able to identify the issues in a conflict, have their perspective be heard and acknowledged, and communicate about how to better understand and solve their problem(s). The mediators, who are often peers, facilitate communication between the parties and empower the students to generate options for resolution and ultimately assist the development of their own resolution to the dispute. The Mediation Program is a larger component of the effort to provide students with the opportunity to develop important life skills such as conflict resolution, anger management, and effective communication skills. For more information, call (603) 862-3377.

President's Commission on the Status of Women

The mission of the UNH President's Commission on the Status of Women is to create equal employment and educational opportunities for all UNH women by promoting an environment free of sexism and discrimination through policy, advocacy, and education. Established in February, 1972, to serve as a sister organization to the New Hampshire State Commission on the Status of Women, its functions include: collecting information on the status of women in the

UNH community; recommending policies to the president and other University administrators; providing education and programs to help women develop their skills; increasing networking among women; and informing the community of issues related to the status of women. The commission reports annually to the president on its activities and findings. Commission membership consists of a chairperson and volunteer representatives from University students, faculty, and staff. Candidates for membership are recommended by the commission and appointed by the UNH president. Located in Thompson Hall, the commission also maintains an e-mail discussion list for those interested in its activities. Call (603) 862-1058, e-mail womens.commission@unh.edu, or visit the commission's Web page at www.unh.edu/womens-commission for more information.

President's Commission on the Status of People of Color

The UNH President's Commission on the Status of People of Color proposes, recommends, and evaluates programs, policies, and services aimed at enhancing diversity and supporting people of color within the UNH community. Established in 1997, the commission acts to ensure implementation of goals to increase campus diversity through minority student, faculty, and staff recruitment and retention, and through curriculum development. As an advocacy group, the commission identifies, recommends, and supports creative strategies for promoting and supporting campus diversity; it responds to issues, needs, and concerns identified within the community; it works to establish effective and collaborative working relationships among departments, offices, committees, commissions, and special programs that play a role in fostering diversity on campus and ensuring that the environment is supportive of the minority populations. A central resource for people of color on campus is the Office of Multicultural Student Affairs (OMSA). Contact OMSA at (603) 862-2050 or on the Web at www.unh.edu/omsa. The commission is located in Thompson Hall G14. Call (603) 862-1058 or visit the commission's Web page at www.unh.edu/cspc for more information.

President's Commission on the Status of GLBT Issues

The mission of the UNH President's Commission on the Status of Gay, Lesbian, Bisexual and Transgender Issues is to facilitate the development of a university community that is equitable and inclusive of all sexual orientations and gender identities and expressions. The commission assists the president in monitoring the campus climate for gay, lesbian, bisexual, and transgender faculty, staff, and students; reviews policies and programs; and makes recommendations for improving the campus climate.

Established in 1992, the commission meets monthly during the academic year. Its membership includes gay, lesbian, bisexual, transgender, and allied University faculty, staff, and students who are appointed by the president. Students from the gay, lesbian, bisexual, transgender, and allied community who are interested in participating on the commission are encouraged to

contact the chair. Call (603) 862-1058, or visit the commission's Web page at www.unh.edu/glbtc.

Police, University

The University Police Department is committed to enforcing the laws of the State of New Hampshire and University policies while supporting the rights and dignity of all persons and maintaining a campus environment in which learning may thrive. Officers, professionally trained in their respective areas, staff both the Police and Support Services divisions. The department holds accreditation from both CALEA and IACLEA.

University Police Department personnel participate in a number of safety programs for the UNH community including adopt-a-dorm and a nationally recognized women's self-defense program called R.A.D.—the Rape Aggression Defense Basic Personal Defense System. Department personnel will meet with groups to provide crime prevention information and tips for increasing personal safety and protection of personal property. A walking patrol provides an escort service for students, faculty, and staff. Engraving pencils to inscribe identification numbers on property in case of theft are loaned free of charge to members of the campus community. To take advantage of any of these services, contact the University Police Department, (603) 862-1427.

Residential Life

Residential Life staff members focus on integrating students' learning outside the classroom with traditional learning in the classroom. Staff members work with students, helping them to succeed academically, become positively involved in the hall and University community, and make friends. They accomplish this by providing students with social and educational opportunities, along with daily interaction.

The Residential Life staff includes a director, a team of 32 professional staff members, and 150 resident assistants (RAs) who are a carefully selected group of undergraduate and graduate students. Each residence hall is staffed with at least one full-time professional and several resident assistants.

The director of residential life also serves as assistant vice president for student and academic services. In addition, Residential Life staff members often initiate responses to individual student emergencies. The assistant vice president also assumes co-responsibility for leadership development, establishing joint ventures with academic programs, orienting new students to the University, and educational and social programming.

Students are welcome to stop by the Residential Life Office, located in 13A Hitchcock Hall, or call (603) 862-2268 for more information.

Sexual Harassment and Rape Prevention Program (SHARPP)

SHARPP is a University of New Hampshire-based crisis intervention center dedicated to providing free and confidential services to survivors of sexual assault, sexual harassment, childhood sexual abuse, incest, intimate partner violence, and stalking, and their allies. In addition, SHARPP's Outreach Program provides education and awareness programs on sexual and interpersonal violence to the greater University of New Hampshire community. SHARPP's services are largely supported by volunteers; volunteering for SHARPP provides many opportunities for the development of leadership skills.

SHARPP's Direct Services include a 24-hour crisis line, emergency medical accompaniment, criminal justice and University judicial process advocacy, support in obtaining academic assistance, support groups, and information and referrals. SHARPP also provides crisis services and support for those who are close to the survivor, including roommates, parents, friends, family members, and instructors.

SHARPP's Outreach program provides the highest quality awareness and educational programming, including campus-wide peer education programs for students in the residential halls, classrooms, and Greek houses, and orientation activities and training for athletic teams, student organizations, and faculty and staff. SHARPP also sponsors awareness events and activities throughout the year.

The SHARPP office is located at 6 Garrison Ave., Verrette House. The office is open Monday through Friday, 8:00 a.m.-4:30 p.m. The Web site is www.unh.edu/sharpp/. The crisis line and administrative number is (603) 862-3494. SHARPP is also available through a toll free number at 1-888-271-7233 and by TTY at 1-800-735-2964. After hours, all calls will be returned by a trained advocate within 10 minutes. All calls are free and confidential.

Student and Academic Services

The University of New Hampshire has made a commitment to “provide students an innovative, high quality, coherent, and integrated educational experience.” This commitment—outlined in the Academic Plan—obligates us to create a learning environment that offers students the greatest opportunity to grow and that provides sufficient connection to the “outside world” for the opportunity to test the relevance and the effectiveness of what they are learning. Such an approach to higher education also requires that we provide the support and direction necessary for the success of our students' endeavors.

The Division of Student and Academic Services seeks to forge integral links between the academic and non-academic aspects of students' lives, to create better connections between

curriculum and co-curricular experiences, and to foster high expectations for academic and personal excellence for all students. The focus of this division is on assisting students to be successful at UNH, contributing to a process of intellectual, personal, and social development that produces graduates who are well-educated, well-adjusted, and prepared to realize their goals and contribute to their communities and society with intellect, professional competence, social awareness, the capacity for effective civic engagement, and respect and understanding for the diversity of people and the world around them.

The Office of the Vice President for Student and Academic Services provides students with information, assistance in problem resolution, and referrals. For more information or assistance, call the office at (603) 862-2053.

University Advising and Career Center

www.unh.edu/uacc

The University Advising and Career Center, Hood House, (603) 862-2064, provides academic advising to undeclared students in the College of Liberal Arts and to provisional English and provisional psychology majors. It supports all students and alumni in career exploration. The center's professional staff provides assistance to students in clarifying their interests and skills as they relate to developing a program of study at the University and declaring a major, offering opportunities to explore career possibilities, and aiding in securing employment. Vocational assessments (Myers-Briggs type indicator and Jackson Vocational Interest Survey) are offered to help individuals to identify potential majors and careers. A nationwide parent/alumni career mentor network comprised of more than 500 members, and an internship office help students explore career possibilities. Job opportunities are offered through online recruiting. Specific job notices are also offered on the center's Web site. Additionally, the center sponsors fairs and activities that bring students into contact with prospective employers and internship opportunities, and help to prepare students for careers.

The center is also the campus resource for students seeking admission to medical and related health profession schools and law school. More broadly, the center assists students considering graduate education, sponsors a graduate and professional school fair, administers national tests for post-baccalaureate study, and guides individuals to resources across the University.

University Internships

Supported by the federally funded Job Locator Development Program, the internship office in University Advising and Career Center helps students locate preprofessional internships in

settings ranging from traditional business and research facilities to more uniquely tailored environments that reflect academic and career interests. Students who wish to engage in career-oriented work experiences should consult with an appropriate faculty sponsor regarding the possibility of receiving academic credit.

Students who wish to secure internships should consult the internship postings listed on the Wildcat Careers link on the center's Web site. Postings are also listed in the center. Several academic departments also have internship listings posted.

For more information regarding internships, consult the center's Web site at www.unh.edu/uacc or contact the center at (603) 862-2064.

Veterans Information

The UNH veterans' coordinator, located in the Registrar's Office at (603) 862-1595, provides counseling on all aspects of veterans' benefits and assistance in procuring and completing the required forms and certifications for veterans' benefits. The veterans' coordinator maintains a comprehensive directory to assist veterans in contacting state, local, and University resources for housing, day care, career planning, employment, financial aid, tutorial assistance, remedial training, handicapped services, and Vietnam Veterans Outreach. The coordinator also provides a framework for networking among campus veterans. For further information, e-mail Lonn.Sattler@unh.edu.

University Writing Program

The University Writing Program is dedicated to making all UNH students successful writers. The University Writing Committee and program staff research, organize, develop, and support a wide range of activities that help students and faculty. The writing program conducts routine and directed assessments of the University writing requirement and the writing intensive (WI) courses that all undergraduates must take. The Writing Committee reviews applications for WI course status as well as student petitions and waivers that allow non-standard and transfer courses to count as writing intensive. UNH has a highly successful writing fellows program that allows specially prepared students to work with writers in specific writing intensive courses. Frequent seminars, workshops, and classes offer both faculty and students the opportunity to learn more about writing, teaching with writing, and emerging technologies for writing.

Robert J. Connors Writing Center

The Robert J. Connors Writing Center provides individual writing conferences to members of the University community. Collaborating on writing helps students excel in classes and beyond. Writers of all skill levels are encouraged to visit the center to have conversations about their

writing. Peer tutors are trained to help students with writing issues from thesis clarity to sentence structure to questions about genre writing and citation styles.

The Connors Writing Center stresses a focus on higher level concerns such as organization, development of ideas, and clarity, but writing assistants are also equipped to discuss sentence-level concerns such as grammar and punctuation. The center welcomes all students, including those whose first language is not English. Writing assistants are trained to work with ESL and EFL students of all levels.

The center offers one-on-one conferences by appointment or by walk-in. Conferences are free and usually last about 50 minutes. The writer's goals set the course for the conference, and students decide whether tutors communicate the results of the conference to their instructors.

Students may call (603) 862-3272 for an appointment or visit the Writing Center in Hamilton Smith, room 7. The Writing Center also offers a walk-in satellite location at Dimond Library. Visit the Writing Program's Web site at www.unh.edu/writing.

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UNH Search:

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**About UNH**

General Information

[Introduction](#)[Admission](#)[Financial Aid](#)[Computing and Information Services \(CIS\)](#)[Campus Life](#)[Programs and Services for Students](#)[Health Services](#)[Fees and Expenses*](#)[UNH Affirmative Action Statement](#)[University Calendar](#)[Campus Map](#)[Trustees and Administrative Officers](#)[Enrollment Statistics, Fall Semester](#)[About the Online Undergraduate Catalog](#)**Academic Information**[University Academic Requirements](#)[Degrees and Major Programs of Study](#)[Program Abbreviations](#)[Special University Programs](#)[Course Descriptions](#)[Time and Room Schedule](#)[Faculty Listing](#)**Other University****Programs**[Graduate School](#)[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« Health Services

The University has a state-licensed and nationally accredited (aaahc.org) health and wellness program.

Health and Counseling Fee

All undergraduate and graduate degree candidates and all non-degree candidates taking more than 12 credits are required to pay a mandatory health and counseling fee. For the academic year 2008-2009, the health and counseling fee was \$560. This pre-paid fee covers many outpatient care needs that are available at Health Services. However, charges not covered by the health fee are the responsibility of the student. Students should check with the Health Services business office at (603) 862-2840 with any questions.

Health Insurance

UNH requires health insurance as a condition of enrollment for full-time degree students at its Durham and Manchester campuses. Students who already have health insurance are able to waive coverage under the University-sponsored plan if their insurance plan meets or exceeds the established waiver criteria. International students with F-1 and J-1 visas will be required to purchase the UNH Health Benefits Plan.

Health Record Requirement

In order to provide effective care, Health Services requires that undergraduate students who have been formally accepted for bachelor's or associate's degree candidacy, and who register for five or more credits, must have health information on file with Health Services. This information will include three forms provided by Health Services on its Web site at www.unh.edu/health-services. These include a physical assessment and immunization form, to be completed by a medical provider and mailed to Health Services, and a health history form, to be completed by the student on-line.

Documentation of proof of immunity to MMR (measles, mumps, and rubella) is required (UNH Academic Policy 02.14). Students must meet one of the following criteria for proof of immunity:

received two vaccinations at least one month apart after 12 months of age, positive titers (blood test), health provider documentation of past history of the diseases, or born before 1957. Students requesting a religious exemption from measles vaccinations must complete the UNH Health Services Request for Exemption, and submit appropriate documentation. Students from countries where TB is endemic are required to either provide documentation of being tested within six months prior to enrollment or provide documentation of treatment for either latent or active TB or a negative chest radiograph if the test is positive. It is the responsibility of students to complete the forms before the beginning of classes. Any student failing to complete these requirements may not be cleared to register for future classes.

Medical Services

Health Services provides comprehensive, student-focused, primary medical care, laboratory testing, radiology, and pharmacy services. During the regular academic year, the clinical staff consists of board-certified physicians, nurse practitioners, nurses, and medical assistants who have experience working with adolescents and young adults. All are committed to prevention and holistic care and are especially skilled in areas such as infectious diseases, injuries, and mental health concerns, as well as women's health including annual exams, PAP tests, and numerous other services for women. There is also a travel clinic providing clearance and immunizations for foreign travel and an allergy clinic providing allergy shots. Students may call to speak by telephone with a triage nurse for advice during regular hours.

The staff maintains close relationships with outside specialists in the Seacoast area to whom they may refer patients. Well-staffed and well-equipped community hospitals are nearby and an emergency ambulance service is available in Durham at all times. For after-hours urgent care, Health Services has an agreement with one of the local hospitals to provide care for students.

General medical appointments may be made by calling (603) 862-2856, and women's health appointments by calling (603) 862-1806. For more information, visit the Health Services Web site at www.unh.edu/health-services.

Medical/Psychological Withdrawals

All students seeking assistance with health-related (physical or mental) withdrawals from the University, or those who will be out for extended periods of time due to health issues, should be in touch with Health Services at 862-1098. Information is also available on the Web at www.unh.edu/health-services/withdrawals.html.

Office of Health Education and Promotion

The Office of Health Education and Promotion (Room 249, Health Services Center) presents educational workshops and facilitates ongoing educational groups on a variety of physical and emotional health issues. Confidential assessment and referral are also available. The office offers alcohol and other drug counseling, nutrition counseling, stress management/wellness counseling, tobacco cessation services, and confidential HIV counseling and testing. A health educator/nurse provides education and support to students living with chronic illnesses. Massage therapy, light therapy and biofeedback also are available. The resource library (Room 218) contains information on physical and emotional health issues, including HIV/AIDS, alcohol, tobacco, and other drugs, men's and women's health issues, wellness, stress management, sexuality, nutrition, and eating concerns. These services and programs reflect Health Services commitment to assisting students in achieving optimal health and well-being. Appointments are made at the Office of Health Education and Promotion, or by calling (603) 862-3823. For more information, visit the Health Services Web site at www.unh.edu/health-services.

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About UNH

General Information

[Introduction](#)
[Admission](#)
[Financial Aid](#)
[Computing and Information Services \(CIS\)](#)
[Campus Life](#)
[Programs and Services for Students](#)
[Health Services](#)
[Fees and Expenses*](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

General Information ▼

« [Fees and Expenses*](#)

**All charges quoted in this section reflect 2008-2009 rates.*

The cost for 2008-2009 at the University averages about \$23,500 for residents of New Hampshire and about \$37,000 for nonresidents. See the following chart for a breakdown of these costs.

UNH bills are sent electronically only. Bills are posted to student MyUNH (blackboard.unh.edu) accounts. Students are notified through UNH assigned e-mail addresses when new bills are posted.

Fees and Expenses (2008-2009)**

	In-state residents	Non-residents
8		
Tuition	\$9,420	\$22,900
Fees		
Activity fee	90	90
Recreational fee	403	403
Memorial Union fee	312	312
Student athletic fee	800	800
Health and counseling fee	560	560
Technology fee	121	121
Transportation fee	50	50
Subtotal of Required Expenses	\$11,756	\$25,236
Room and Board		
Double room	5,306	5,306
Silver Meal Plan	3,290	3,290
Subtotal	\$8,596	\$8,596
Estimated Expenses	3,000	3,000
(to cover books, supplies, transportation, misc.)		
Approximate Costs	\$23,500	\$37,000

Optional Fees

Parents Association	45	45
Sponsorship		

Health Insurance is required as a condition of enrollment for all full-time students. Students may provide proof of adequate coverage through another plan, or may elect coverage under the University's plan. Cost of the University plan for the 2008-2009 academic year was \$1,490.

Note: The University reserves the right to adjust charges for such items as tuition, board, student fees, and room rent. Such charges will be announced as far in advance as possible.

Tuition*

Tuition for the academic year 2008-2009 was \$9,420 for N.H. residents and \$22,900 for nonresidents. The rates per credit hour in 2008-2009 were \$393 for N.H. residents and \$954 for nonresidents.

Students are permitted to enroll for more than 20 credits only with the approval of their college or school dean. Persons carrying more than 20 credits will be billed a per-credit fee for each credit above 20 credits, whether or not a student has obtained the dean's approval. (See per-credit hour rates above.) Courses taken for audit are charged at the same rates as for-credit registrations. No refund will be made if a student subsequently drops a course, bringing the credits to 20 or fewer. Undergraduates registering for fewer than 12 credits pay the per-credit hour charge, plus a registration fee of \$20 per semester. Undergraduates registered for 5-8 credits are charged 50% of the usual mandatory fees. Students registered for fewer than 5 credits pay the technology fee but are not charged for the other mandatory fees. The minimum charge for any recorded course is the per-credit charge of 1 credit hour.

Tuition differential charges apply to some majors. Students in the College of Engineering and Physical Sciences (CEPS), including engineering and computer science, and the Whittemore School of Business and Economics (WSBE), will be charged a tuition differential. The differential is the same rate for both N.H. residents and nonresident students. In 2008-2009 the CEPS differential was \$748 per academic year and the WSBE differential was \$733 per academic year. CEPS and WSBE students who register for fewer than 12 credits pay a differential per-credit hour (\$31 for both CEPS and WSBE per-credit in 2008-2009). Music majors are charged an applied music fee of \$400 each semester.

All admitted students must pay an enrollment fee-\$300 for residents and nonresidents. If a student decides not to attend the University, these payments may be refunded on a prorated basis until August 15, according to the guidelines set by the Office of Admissions.

Three-fourths of tuition and mandatory fee charges will be refunded to students withdrawing or dropping courses within one week of the first day of classes; one-half after one week and within 30 days; and none thereafter (see the [University Calendar](#)). Students receiving federal financial aid will have their return of unearned aid calculated in accordance with the U.S. Department of Education regulations in effect at the time of their withdrawal. For more information concerning withdrawal, call Business Services, (603) 862-2230. A degree candidate who withdraws from UNH and subsequently enrolls as a special student within the following year will be billed for tuition and fees on the same basis as degree candidates. Students with outstanding financial obligations to the University must clear their accounts before their registration will be confirmed.

A \$25 fee must be paid by all students dropping courses after the third Friday of classes. The \$25 fee will not be charged to persons changing to a reduced load or withdrawing; in both of these cases, the regular tuition rebate policy will apply. If a student has received permission to add a course after the third Friday of classes, a \$25 fee will be assessed for each course added. A change of section within the same course is accomplished by a “drop” of one section and an “add” of another; however, only one \$25 fee is assessed under these circumstances.

Fees*

Required fees for 2008-2009 included a Memorial Union fee (\$312) for the use and administration of the student union; a recreational fee (\$403) for support of recreational facilities; a student activity fee (\$90) for support of the undergraduate newspaper, yearbook, student government, student lawyer, student radio station, and other student organizations; a technology fee (\$121); a student athletic fee (\$800) to provide support for athletic programs; a health and counseling fee (\$560) to provide general health care through University Health Services; and a Transportation fee (\$50) to provide student transportation services.

There are no waivers of these fees. The services and facilities are available to all-the extent to which each student uses them cannot be the factor by which assessment is determined. Students who withdraw or drop to part-time after classes begin are eligible for refund of fees at the same rate as tuition refunds listed previously.

As a condition of enrollment, all full-time UNH students will be required to carry health insurance. Students may elect coverage under the University's student health benefits plan, or may waive the requirement by providing proof of adequate coverage through another plan.

International students with F1 or J1 visas are required to purchase the UNH-sponsored coverage. There are no exceptions to this policy.

A \$45 contribution may be included to sponsor the UNH Parents Association.

Mandatory Fees Include

Recreation Fee

Use of indoor pool at the field house

Use of athletic facilities at the Whittemore Center, which includes:

Aerobics

Saunas

Locker rooms

With an additional fee:

CPR/First Aid course

Ballroom dancing

Lifeguard instruction

Health Services Fee

For information, see Health Services.

Memorial Union Fee

For more information, see Memorial Union.

Athletic Fee

Admittance to all home games of organized sports at UNH

Financial support for athletes and athletic teams

Activity Fee

Support for the following organizations:

The undergraduate newspaper

Yearbook

Student government

Student lawyer

Student radio station

Movies at reduced rates

For more information, check the *Get Involved* guide available at the Memorial Union Building.

Technology Fee

Support for the following:

Student computing clusters

Walk-in Help Desk services

Technology-enhanced classrooms infrastructure

Academic technology liaisons
Technology-enhanced learning

Transportation Fee

Student transportation Services:

Campus Connector

Wildcat Transit

Safe rides

Amtrak Quik Ticket trip

Non-emergency rides

Room and Board*

Room and board charges averaged \$8,596 for the 2008-2009 academic year for a double room with a mandatory meal plan.

New students accepting a space on campus must include a \$200 housing deposit with their housing application; for returning students, the deposit is \$500. Written notification of cancellation of the room application or assignment received before August 15 will result in forfeiture of the deposit only. Written notification of cancellation after August 15 and before Friday of the first week of class will result in a charge of one-fourth of the full semester's housing fee.

If the student fails to occupy the assigned room by Friday of the first week of class or cancels the agreement by mutual consent, or if for disciplinary or nonrenewal actions the agreement is canceled, the student will receive a 75 percent refund of the semester's housing fee.

Cancellation after the first Friday of classes and before thirty days after registration will result in a 50 percent refund of the semester's housing fee. Cancellation thirty days after registration will result in no refund of the housing fee. Students who check in or move in to a hall or apartment, move out, and do not withdraw from the University are charged the full housing fee. If the agreement is canceled, the total amount of the housing deposit will be applied against any unpaid University charges.

Refunds of meal plans will be granted only on approval waivers or upon withdrawal from the University. If a refund is approved for an Unlimited Meal Plan, the balance will be prorated by the number of weeks the student attended classes. Block Meal Plans will be prorated by the number of meals consumed. Unused Dining Dollars will be refunded minus any applicable bonus. If a student has spent any part of the bonus, that amount will be charged to the student account.

Rebates

Any amount owed to the University will be deducted from any rebate due to a student.

Deposits and Course Fees

Refundable deposits may be required to cover locker keys or loss or breakage in certain departments. A semester charge will be made for individual lessons in music, as noted in the description of applied music courses. (Non-music majors will be charged a fee upon completion of an audition). A charge will be made for riding lessons and scuba, as noted in the sections on animal sciences and physical education. Some courses carry special fees to cover the costs of special equipment, field trips, etc.; these are noted in the course descriptions. Thompson School students pay curriculum fees to cover special costs in their programs (see the Thompson School section). Students will be charged a computer use fee for courses requiring computer access and/or common access accounts. For certain courses, there are also lab fees.

Other Expenses

Books and classroom supplies cost approximately \$800 annually. These may be purchased at the University Bookstore.

Personal expenses vary considerably with individual students and include clothing, laundry, recreation, incidentals, and travel.

Payment

All bills for tuition, fees, room and board and other semester charges are due in full on the payment due date for each semester. A late fee may be assessed to student accounts not paid in full by that payment due date. Student accounts not paid in full within 30 days after the payment due date may be assessed additional late fees, default charges, interest and/or collection costs, and the student may be subject to deregistration from classes.

Parents and students who wish to make periodic payments for tuition, fees, room and board and other semester charges should contact UNH Business Services, well in advance of the semester payment due date, for information on approved payment plans.

Undergraduate bills are sent electronically through posting to students' MyUNH (blackboard.unh.edu) accounts. Tuition bills are posted twice a year, in mid-July for the fall semester and in mid-November for the spring semester. Monthly statements are also posted as needed. E-mails are sent to student's UNH-assigned e-mail addresses notifying students when new bills have been posted. Students may set up Parent Portal accounts to allow parents or

others to access their student accounts.

Through the online system students can view a history of electronic bills and payments and access a real-time view of their accounts. Payment may be made online by check, or the bill may be printed and mailed with payment. UNH does not accept credit card payments from Durham undergraduates.

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[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

[General Information](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

UNH Affirmative Action Statement ▼

The University of New Hampshire is a public institution with a long-standing commitment to equal opportunity for all. It does not discriminate on the basis of race, color, religion, sex, national origin, age, veteran's status, gender identity or expression, sexual orientation, marital status, or disability in admission or access to, or treatment or employment in, its programs, services, or activities. Inquiries regarding discriminatory harassment should be directed to Donna Marie Sorrentino, Director of Affirmative Action and Equity, Room 305 Thompson Hall, 105 Main Street, Durham, N.H. 03824, phone (603) 862-2930 (Voice/TTY), fax (603) 862-2936, or to the Regional Director, Office for Civil Rights, U.S. Department of Education, 33 Arch Street, Suite 900, Boston, MA 02110-1491.

There are various grievance procedures to provide for the resolution of complaints under this policy. Information may be obtained at the [Affirmative Action and Equity Office](#) or on the Affirmative Action and Equity Web site at www.unh.edu/affirmativeaction

The University complies with federal guaranteed student loan regulations and will supply information about the employment of its graduates who have majored in specialized degree programs that normally lead to specific employment fields. This information may be obtained upon request from the University's Career Services, which is available to all students. The University does not guarantee employment to its graduates, but their chances for employment are enhanced if they have begun career planning early in their undergraduate days.

The University provides information pertaining to the Family Educational Rights and Privacy Act of 1974 (the "Buckley Amendment") in the annual student handbook. Information also is available from the Office of the Vice President for Student Affairs and the Office of the Provost and Vice President for Academic Affairs. The annual student publication, [Student Rights, Rules, and Responsibilities](#), also contains University regulations and policies regarding student conduct.

Program descriptions may vary from the actual content or requirements because of advancements in the discipline or the active nature of academic planning and decision making. Accordingly, the University reserves the right to make whatever changes are deemed

necessary in schedules, course content, requirements, academic programs (including their termination), calendar, tuition and fees, services, or any other aspect of the University's operations, giving whatever notice thereof is reasonable under the circumstances. Therefore, the provisions of this catalog are not an irrevocable contract between the students and the University. The University is also not responsible for failure to provide or for delay in providing expected services and/or facilities when such failure arises from causes beyond the reasonable control of the University.

All aforementioned publications are available in alternate formats upon request.

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UNH is part of the University System of New Hampshire.

[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

[General Information](#)

[UNH Affirmative Action Statement](#)

[University Calendar](#)

[Campus Map](#)

[Trustees and Administrative Officers](#)

[Enrollment Statistics, Fall Semester](#)

[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)

[Degrees and Major Programs of Study](#)

[Program Abbreviations](#)

[Special University Programs](#)

[Course Descriptions](#)

[Time and Room Schedule](#)

[Faculty Listing](#)

Other University

Programs

[Graduate School](#)

[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010 Trustees and Administrative Officers ▼

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UNH Search:



ENROLLMENT STATISTICS—FALL SEMESTER

UNH Durham	2005–2006		2006–2007		2007–2008		2008–2009	
	(Men/Women —Total)							
Freshman	1232/1587	— 2819	1287/1814	— 3101	1088/1527	— 2615	1121/1549	— 2670
Sophomore	1117/1515	— 2632	1274/1554	— 2828	1316/1777	— 3093	1197/1587	— 2784
Junior	1078/1499	— 2577	1060/1463	— 2523	1246/1538	— 2784	1317/1741	— 3058
Senior	1106/1503	— 2609	1139/1522	— 2661	1171/1538	— 2709	1297/1606	— 2903
1st Year—T.S.A.S.	135/85	— 220	118/88	— 206	131/98	— 229	140/89	— 229
2nd Year—T.S.A.S.	110/76	— 186	123/76	— 199	123/68	— 191	124/77	— 201
D.C.E.—A.A.	9/11	— 20	0/5	— 5	0/1	— 1	0/0	— 0
Graduate Post-Bacc Certificate*	N/A		N/A		7/9	— 16	9/17	— 26
Graduate—Master's	742/1258	— 2000	721/1225	— 1946	726/1175	— 1901	674/1111	— 1785
Graduate—C. A. G. S.	13/11	— 24	13/11	— 24	21/16	— 37	17/19	— 36
Graduate—Doctoral	250/231	— 481	258/230	— 488	254/241	— 495	257/255	— 512
Total Degree Candidates	5779/7765	— 13544	5980/7977	— 13957	6076/7979	— 14071	6153/8051	— 14204
Continuing Education Credit	378/642	— 1020	367/525	— 892	355/627	— 982	277/483	— 760
Summer Session	1075/1819	— 2894	1097/1920	— 3017	1086/1932	— 3018	1071/1837	— 2908

Baccalaureate Curricula

	2005–2006	2006–2007	2007–2008	2008–2009	2005–2006	2006–2007	2007–2008	2008–2009
Life Sciences and Agriculture				Liberal Arts				
Freshman	394	433	374	412	1303	1387	1187	1132
Sophomore	324	349	441	398	1270	1329	1398	1286
Junior	371	343	402	503	1071	1035	1117	1149
Senior	409	427	406	438	1004	1023	1025	1079
Total	1498	1552	1623	1751	4648	4774	4727	4646
Engineering and Physical Sciences				Whittemore School of Business and Economics				
Freshman	358	414	393	398	440	512	384	399
Sophomore	272	340	394	390	427	456	492	412
Junior	273	266	331	380	405	417	471	505
Senior	326	327	339	387	371	387	423	476
Total	1229	1347	1457	1555	1643	1772	1770	1792
Health and Human Services								
Freshman	324	355	277	329				
Sophomore	339	354	368	298				
Junior	457	462	463	521				
Senior	499	497	516	523				
Total	1619	1668	1624	1671				

UNH Manchester	2005–2006		2006–2007		2007–2008		2008–2009	
	(Men/Women —Total)							
Associate	81/120	— 201	90/107	— 197	108/101	— 209	99/104	— 203
Baccalaureate	237/341	— 578	255/344	— 599	245/319	— 564	250/339	— 589
Total Degree Candidates	318/461	— 779	345/451	— 796	353/420	— 773	349/443	— 792
Continuing Education Credit	145/188	— 333	149/192	— 341	152/214	— 366	139/166	— 305

*Beginning in Fall 2007, postbaccalaureate certificate students are counted as degree candidates.

**About UNH**[General Information](#)[UNH Affirmative Action Statement](#)[University Calendar](#)[Campus Map](#)[Trustees and Administrative Officers](#)[Enrollment Statistics, Fall Semester](#)[About the Online Undergraduate Catalog](#)**Academic Information**[University Academic Requirements](#)[Degrees and Major Programs of Study](#)[Program Abbreviations](#)[Special University Programs](#)[Course Descriptions](#)[Time and Room Schedule](#)[Faculty Listing](#)**Other University****Programs**[Graduate School](#)[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

About the Online Undergraduate Catalog ▼

Welcome to the UNH online undergraduate catalog! Offering new features, easy-to-navigate pages, and updated content, the electronic catalog offers a wealth of resources as you explore the great diversity of academic options and life here at UNH. With plans for an on-line-only catalog next year, this effort marks a major step in honoring the University's commitment to being a national leader in sustainable higher education.

The catalog displayed here is for the 2009-2010 academic year. The course listings are updated from the University's databases weekly, and are the latest information available.

Individuals planning to register are also advised to consult the [Time and Room Schedule](#) published by the Registrar's Office.

For information about specific courses, click on [2009-2010 Course Listing](#). For information about an academic department or program, click on the [college or school](#).

We are always looking for ways to make this online resource even better. Please fill out our [survey](#) or e-mail us with your feedback at undergradcatalog.editor@unh.edu. For more information about the online Undergraduate Catalog, contact University Communications and Marketing, Schofield House, University of New Hampshire, 03824, (603) 862-1460.

June 2009

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UNH Search:





About UNH

[General Information](#)[UNH Affirmative Action Statement](#)[University Calendar](#)[Campus Map](#)[Trustees and Administrative Officers](#)[Enrollment Statistics, Fall Semester](#)[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)[University Writing Requirement](#)[General Education Program](#)[Degree Requirements](#)[Majors, Minors, and Options](#)[Grades](#)[Academic Honesty](#)[Degrees and Major Programs of Study](#)[Program Abbreviations](#)[Special University Programs](#)[Course Descriptions](#)[Time and Room Schedule](#)[Faculty Listing](#)

Other University

Programs

[Graduate School](#)[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

University Academic Requirements ▼

« [University Academic Requirements](#)

To graduate from the University of New Hampshire, baccalaureate and associate in art students must fulfill four types of University requirements: writing, general education, degree, and major.

[University Writing Requirement](#)

<http://www.unh.edu/writing/>

As the cornerstone of any higher education, academic and disciplinary literacy is the concern of the entire faculty and the whole University curriculum. Understanding that literacy is a long-term development process, the University community is committed to the following goals for student writing and learning:

- Students should use writing as an intellectual process to learn material, to discover, construct, and order meaning.
- Students should learn to write effectively in various academic and disciplinary genres for professional and lay audiences.
- Students should learn to display competence with the generic features and conventions of academic language.

Writing Intensive Courses

All bachelor's degree candidates are required to complete four "writing intensive" courses, which must include English 401 (Freshman Composition) and three additional "writing intensive" courses, one of which must be in the student's major, and one of which must be at the 600-level or above. Specific courses that fulfill the writing requirement are listed at unhinfo.unh.edu/registrar/registration.html. Some courses have both writing intensive and non-writing intensive versions, such as HIST 405 and HIST 405W. In those cases, only the sections attached to the "W" courses will be writing intensive.

Please note that some cross-listed courses are also writing intensive. For the most current information on cross-listed courses, visit the Web site listed above.

General Education Program

The general education program is designed to emphasize the acquisition and improvement of those fundamental skills essential to advanced college work, especially the abilities to think critically, to read with discernment, to write effectively, and to understand quantitative data. It aims to acquaint the student with some of the major modes of thought necessary to understanding oneself, others, and the environment. It seeks to develop a critical appreciation of both the value and the limitations of significant methods of inquiry and analysis. Its goal, moreover, is the student's achievement of at least the minimal level of literacy in mathematics, in science and technology, in historical perspectives and the comprehension of our own and other cultures, in aesthetic sensibility, and in the diverse approaches of the humanities and the social sciences to understanding the human condition.

General education is intended to serve as a foundation for any major. It aims to go beyond the mastery of job-related skills and educate students so that they learn how to learn. The program is based on the premise that change is the dominant characteristic of our times and that the truly useful education stresses intellectual adaptability and the development of those problem-solving abilities, cognitive skills, and learning techniques vital to lifelong learning.

» General Education Requirements

Degree Requirements

Requirements in this catalog apply to students who enter the University between July 1, 2009, and June 30, 2010. (Students who entered the University at an earlier time but who wish to change to the requirements of this catalog must apply to the appropriate office for the change.) Students will be held responsible for all work required for graduation and for the scheduling of all necessary courses. Students are each provided one free copy of the catalog that is in effect at the time of their entry to the University. They are expected to keep that copy for the duration of their time at the University. Any other copies must be purchased, and availability cannot be guaranteed.

Modifications tend to occur in major programs during the period of students' undergraduate careers. Students are expected to conform to these changes insofar as they do not represent substantive alterations in their course of study.

Note: Although the University will try to provide sufficient facilities so that students may pursue any major or curriculum for which they meet the requirements, such a privilege cannot be guaranteed, since rapidly increasing enrollment sometimes results in the overcrowding of

required specialized courses. On occasion, students may remain in a crowded curriculum if they are willing to take certain courses during the summer session.

- » **Bachelor of Arts**
- » **Bachelor of Fine Arts, Bachelor of Music**
- » **Bachelor of Science**
- » **Associate in Arts**
- » **Associate in Applied Science**
- » **Dual Degrees**
- » **Minimum Graduation Average**
- » **Quota of Semester Credits**
- » **Residence**
- » **Leave of Absence or Withdrawal from the University**

Majors, Minors, and Options

Majors and some interdisciplinary minors are described under their various schools and colleges; other interdisciplinary and intercollege minors are described in the section on **Special University Programs**.

- » **Student-Designed Majors**
- » **Second Majors**
- » **Minors**
- » **Options**

Grades

Grading and honors policies as stated in this catalog apply to all undergraduate students.

Instructors assign grades as listed below; grade points per credit are indicated in parentheses. For all undergraduate courses, grading standards established by the Academic Senate are that a C indicates competent, acceptable performance and learning; B indicates superior performance and learning; and A indicates excellent performance and learning. These standards apply to all undergraduate courses, instructors, departments, subjects, and colleges. The University reserves the right to modify grading and honors practices.

- A (4.0) Excellent
- A- (3.67) Intermediate grade
- B+ (3.33) Intermediate grade
- B (3.0) Superior

B- (2.67) Intermediate grade

C+ (2.33) Intermediate grade

C (2.0) Satisfactory, competent

C- (1.67) Intermediate grade

D+ (1.33) Intermediate grade

D (1.0) Marginal grade

D- (0.67) Intermediate grade

F (0.0) Failure - Academic performance so deficient in quality as to be unacceptable for credit.

AF (0.00) - Administrative F (usually indicates student stopped attending without dropping the course); is included in grade-point average.

CR - Credit: given in specific courses having no letter grades, designated credit/fail.

P - Passing grade in a course taken under the student pass/fail grading alternative.

W Withdrawal - Assigned if withdrawal is later than fifth Friday of classes (but not after midsemester); is not included in grade-point average.

WP - Withdrawal: assigned if withdrawal is after mid-semester and if student is passing; is not included in grade-point average.

WF - Withdrawal: assigned if withdrawal is after mid-semester and if student is failing; is included in grade-point average.

AU - Audit: no credit earned.

IC - Grade report notation for student's incomplete coursework.

IA - Indicates "incomplete" in a thesis or continuing course of more than one semester; the grade earned will replace "IA" assigned in previous semesters.

IX - Grade not reported by instructor.

Students earning a semester or cumulative grade-point average less than 2.00 are placed on "academic warning."

Pass/Fail

While earning a bachelor's degree, students may choose the pass/fail grading alternative for a

maximum of 4 credits per semester up to a total of 16 credits toward the degree.

Pass/fail cannot be used for general education requirements, for writing intensive courses, for courses required by a student's major or second major, for option or minor requirements, for ENGL 401, or for repeated courses. In addition, B.A., B.F.A., and B.M. degree candidates may not use pass/fail for courses taken to meet the foreign language requirement, and no Whittemore School course may be taken on a pass/fail basis by a student majoring in administration, economics, or hospitality management.

The minimum passing grade for credit is a D- (0.67); any grade below this minimum is a fail. All grades will be recorded on the grade roster as A, B, C, D, F, or intermediate grades. The pass/fail marks will be placed on students' transcripts and grade reports by the Registrar's Office. The course will not be included in the grade-point calculation, but the pass or fail will be recorded, and in the case of a pass, the course credits will be counted toward degree requirements. Associate in Arts students, see the [University of New Hampshire at Manchester](#).

Honors

An undergraduate degree student, after completion of at least 12 graded credits in University of New Hampshire courses, is designated as an honor student for a given semester if the student has a) completed at least 12 graded credits for that semester and earned at least a 3.20 semester grade-point average; or b) earned at least a 3.20 cumulative grade-point average and at least a 3.20 semester grade-point average regardless of the number of graded credits that semester.

These categories are used: 3.20 to 3.49 (honors); 3.50 to 3.69 (high honors); and 3.70 to 4.00 (highest honors).

Bachelor's degree candidates who have earned honors for their entire work at the University will be graduated with honors based on the final cumulative grade-point average, provided that a minimum of 64 graded credits have been completed in University of New Hampshire courses. The Latin equivalent of the honors classification will appear on the student's academic record and diploma. The student's honors classification will be noted in the commencement program.

Academic Honesty

Academic honesty is a core value at the University of New Hampshire. The members of its academic community both require and expect one another to conduct themselves with integrity. This means that each member will adhere to the principles and rules of the University and

pursue academic work in a straightforward and truthful manner, free from deception or fraud. The academic policy can be found in the annual publication, *Student Rights, Rules, and Responsibilities*.

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UNH Search:





About UNH

[General Information](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[University Writing Requirement](#)
[General Education Program](#)
[Degree Requirements](#)
[Majors, Minors, and Options](#)
[Grades](#)
[Academic Honesty](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

University Academic Requirements ▼

« [General Education Program](#)

The general education program is designed to emphasize the acquisition and improvement of those fundamental skills essential to advanced college work, especially the abilities to think critically, to read with discernment, to write effectively, and to understand quantitative data. It aims to acquaint the student with some of the major modes of thought necessary to understanding oneself, others, and the environment. It seeks to develop a critical appreciation of both the value and the limitations of significant methods of inquiry and analysis. Its goal, moreover, is the student's achievement of at least the minimal level of literacy in mathematics, in science and technology, in historical perspectives and the comprehension of our own and other cultures, in aesthetic sensibility, and in the diverse approaches of the humanities and the social sciences to understanding the human condition.

General education is intended to serve as a foundation for any major. It aims to go beyond the mastery of job-related skills and educate students so that they learn how to learn. The program is based on the premise that change is the dominant characteristic of our times and that the truly useful education stresses intellectual adaptability and the development of those problem-solving abilities, cognitive skills, and learning techniques vital to lifelong learning.

General Education Requirements

Students must fulfill the following general education requirements:

1. one course in writing skills, which must be taken during a student's first year. This course will satisfy the English 401, First Year Writing component of the writing requirement;
2. one course in quantitative reasoning, which must be taken during a student's first year;
3. three courses in biological science, physical science, or technology, with no more than two courses in any one area;
4. one course in historical perspectives;

5. one course in foreign culture (may also be satisfied by approved study abroad programs);
6. one course in fine arts;
7. one course in social science; and
8. one course in works of philosophy, literature, and ideas.

General education requirements shall not be waived on the basis of special examinations or placement tests, except for the College Board Advanced Placement tests and the College Level Examination Program (CLEP) tests. The required courses cannot be taken on a pass/fail basis. No single course may be counted in more than one general education category. Academic departments may or may not permit general education courses to count toward requirements for a major. Each course must carry at least 3 credits to qualify for general education consideration.

The specific courses that fulfill each category of the general education requirements are printed below. Any course appearing in this list will fulfill a general education requirement if taken after September 1, 2009. For the most current listing of general education courses, go to:

unhinfo.unh.edu/registrar/geneduc/genedreq.html.

1. *Writing skills*

ENGL 401

2. *Quantitative reasoning*

ADM 430‡

ADMN 420

BIOL 528

CIS 425‡

CS 405, 407, 410

EREC 525

HHS 540

MATH 420, 424A, 424B, 425, 439

PHIL 412

PSYC 402

SOC 502

3. *Biological science, physical science, and technology*

Biological science

ANSC 401

ANTH 415

BIOL 411, 412, 413‡, 414‡, 416, 420

BSCI 405‡, 406‡, 431‡

ECE 444

HMP 501

KIN 527, 607

MICR 407, 501

MLS 444A

NR 410, 433

NUTR 400

OT 513

PBIO 400, 412, 421

ZOOL 401, 412, 444A, 474, 507, 508

Physical science

CHEM 403, 404, 405

ESCI 401, 402, 405, 409, 420, 444, 501

GEOG 473

NR 504

PHYS 401, 402, 406, 407, 408, 444A

Technology

BCHM 444

BIOL 404, 444A, 520‡

BSCI 421‡, 422‡

CHE 410

CHEM 444A, 444B

CIE 444

CIS 405‡, 411‡, 515‡

CS 401, 403

ENE 520

HMP 444

JUST 405

MICR 444

MS 401

NR 415, 435, 444, 444A, 444B, 444C, 444D, 444E, 502

NURS 450

OT 444

PBIO 405

PHIL 447, 450

PHYS 444

TECH 444, 583

ZOOL 444

4. Historical perspectives

AMST 444D

ANSC 415, 444, 444B

CHEM 444

CLAS 405, 406, 550

ENGL 515

FS 444

GEOG 680

HIST 405, 406, 410, 421, 422, 435, 436, 444+, 444A, 444B, 444C, 444D,

444E+, 483, 497, 505, 506, 511, 512, 521, 522,

531, 532, 565, 567, 579, 680

HMP 505

HUMA 510C†, 511C†, 512C†, 513C†, 514C†, 515C†

ITAL 681A*, 682A*

KIN 444B, 561

LLC 444E

MLS 444B

POLT 403, 508

RS 483

WS 444A

5. Foreign culture

ANTH 411, 500, 512, 515, 650

CHIN 425, 503, 504

ENGL 581

FREN 425, 426, 503, 504, 525, 526

GEOG 401, 402, 541

GERM 503, 504, 523, 524, 525

GREK 503, 504, 505, 506

HIST 425, 563

INTR 438†

ITAL 425, 503, 504, 525

JPN 425, 503, 504

LATN 503, 504

LLC 444A, 444B

NR 660

POLT 553, 555, 556

RUSS 425, 503, 504

SPAN 503, 504, 525, 526

6. Fine arts

AMST 444C

ARTS 444, 444A, 480, 487, 532, 570, 571, 572, 573, 574, 580, 581

CA 502†

ENGL 444J

FREN 522

HUMA 510A†, 511A†, 512A†, 513A†, 514A†, 515A†

INCO 480

LLC 444D

MUSI 401, 402, 444, 501, 502, 511

PHIL 421

THDA 435, 436, 438, 442, 444, 450, 459, 461, 462, 463, 487, 546, 548, 583

7. Social science

ADMN 444

ANSC 405, 444A

ANTH 412, 625

CD 415

CLAS 506

CMN 455, 457

DS 444

ECN 411†, 412†

ECON 401, 402

EDUC 444, 444A, 444B

ENGL 405, 444B, 444F

EREC 409, 411
FS 525, 545
GEOG 581, 582
GERO 600
HHS 444, 510
HMP 401
HUMA 510D†, 511D†, 512D†, 513D†, 514D†, 515D†
INCO 401, 402
KIN 444A, 444C, 560
LING 405, 444B, 444F
MGT 444
NURS 535
NUTR 405
POLT 402, 444, 504, 505, 560, 565, 566, 567

PS 501+
PSYC 401, 444, 444A
RMP 444, 444A, 490, 570
SOC 400, 444, 444A, 520, 530, 540
SW 444, 525, 550
WS 401, 444

8. Works of literature, philosophy, and ideas

AMST 444A, 444B, 501, 502
ANTH 450
BIOL 444
CLAS 401, 402, 410A, 410B, 410C, 421, 422, 444, 444A, 500
CMN 456
ECN 444+
ECS 400, 550
ENGL 403, 419, 444C, 444D, 444E, 444G, 511, 513, 514, 516, 517, 518, 521, 522, 523, 530, 531, 532, 533, 555, 585, 586, 651, 657, 681, 685
FREN 500, 651, 652
GERM 500, 521
HIST 484
HUMA 401, 411‡, 412‡, 444, 444A, 444B, 500, 510B†, 511B†, 512B†, 513B†, 514B†, 515B†, 519‡, 650, 651
INCO 450
ITAL 500, 521, 522, 651, 652, 681B*, 682B*

LLC 440, 444, 444C

PHIL 401, 417, 424, 430, 435, 436, 444, 444A, 520, 525, 540, 560, 570, 660

POLT 401, 407, 444A, 520, 521, 522, 523, 524

PORT 500

PSYC 571

RMP 511

RS 484

RUSS 500, 521, 522, 593

SPAN 500, 522, 650, 651, 652, 653, 654

WS 405

*Students may not receive credit for both ITAL 681A and 681B or 682A and 682B.

†For students who complete four courses from the entire sequence of HUMA 510, 511, 512, and 513, enrolling in different discussion sections each time, a fifth general education requirement (in foreign culture) will be waived, although additional credit hours will not be granted.

‡Offered only at UNH Manchester.

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About UNH

[General Information](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[University Writing Requirement](#)
[General Education Program](#)
[Degree Requirements](#)
[Majors, Minors, and Options](#)
[Grades](#)
[Academic Honesty](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

University Academic Requirements ▼

« Degree Requirements

Requirements in this catalog apply to students who enter the University between July 1, 2009, and June 30, 2010. (Students who entered the University at an earlier time but who wish to change to the requirements of this catalog must apply to the appropriate office for the change.) Students will be held responsible for all work required for graduation and for the scheduling of all necessary courses. Students are each provided one free copy of the catalog that is in effect at the time of their entry to the University. They are expected to keep that copy for the duration of their time at the University. Any other copies must be purchased, and availability cannot be guaranteed.

Modifications tend to occur in major programs during the period of students' undergraduate careers. Students are expected to conform to these changes insofar as they do not represent substantive alterations in their course of study.

Note: Although the University will try to provide sufficient facilities so that students may pursue any major or curriculum for which they meet the requirements, such a privilege cannot be guaranteed, since rapidly increasing enrollment sometimes results in the overcrowding of required specialized courses. On occasion, students may remain in a crowded curriculum if they are willing to take certain courses during the summer session.

Bachelor of Arts

1. At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.00 for all courses taken at the University in which a grade is given.
2. Completion of the University general education requirements.
3. Completion of the University writing requirement.
4. Proficiency in a foreign language at the level achieved by satisfactory work in a one-year,

college-level course. This requirement may be fulfilled by taking a College Board foreign language achievement test or by completing the equivalent of a full-year elementary course in any foreign language (must be eight UNH credits or equivalent), or by completing the equivalent of a semester of a course in a foreign language beyond the elementary year (must be four UNH credits or equivalent), or by completing the equivalent of a one-year college-level course in American Sign Language (must be eight UNH credits or equivalent). Students should be aware that not all majors accept American Sign Language as a means to satisfy departmental foreign language proficiency requirements and should check with their advisers. The proficiency in a foreign language requirement must be satisfied by the end of the sophomore year. No credit is awarded for elementary year college coursework if the student has had two or more years of that language in high school.

Note: A student with a documented disability who wishes accommodation on the basis that the disability will prevent him or her from successfully mastering a foreign language requirement, or whose foreign language requirement was waived in high school because of a documented disability, must contact the Disability Services for Students Office, 118 Memorial Union Building, (603) 862-2607 (Voice/TDD).

Bachelor of Fine Arts, Bachelor of Music

Requirements for the B.F.A. degree are outlined in the [Department of Art and Art History](#), College of Liberal Arts; for the B.M. degree, go to the [Department of Music](#), College of Liberal Arts.

Bachelor of Science

1. At least 128 credits in courses numbered 200-799, with a cumulative grade-point average of 2.0 for all courses taken at the University in which a grade is given.
2. Completion of the University general education requirements.
3. Completion of the University writing requirement.
4. For specific requirements, check individual departmental or program listings.

Associate in Arts

For degree requirements, see the [University of New Hampshire at Manchester](#).

Associate in Applied Science

For degree requirements, see the **Thompson School of Applied Science**.

Dual Degrees

The opportunity to pursue simultaneously two undergraduate degrees enhances and broadens the education of certain students. The program is only for those students who can adequately handle the requirements for two different degrees and who can reasonably allocate the additional time and effort needed for the program. Except for specific five-year degree programs, a student may not pursue two different degree levels simultaneously.

Requirements

1. Students desiring dual degrees must petition the college dean or deans involved for permission.
2. Students must have a minimum 2.5 cumulative grade-point average.
3. Students planning to take one degree in a highly prescribed curriculum should register as freshmen in the appropriate school or college for that curriculum.
4. It is expected that candidates for two degrees will complete 32 credits beyond those required for the first degree.
5. Students can earn more than one bachelor of science (B.S.) degree, provided that each degree is in a different field. Students cannot earn more than one bachelor of arts (B.A.) degree.
6. Transfer students already holding a baccalaureate degree from another accredited institution may pursue an additional baccalaureate degree at the University of New Hampshire provided they fulfill the previously listed requirements. The degree received at the first institution will be accepted by UNH as awarded by that institution.

Supervision

As soon as a student is accepted as a candidate for two degrees, the appropriate dean(s) will appoint supervisors for each of the proposed majors. The supervisors and the student will work out a basic course plan for the two degrees and inform the appropriate dual degree dean(s) of the plan. The supervisors will maintain joint control over the student's academic program. The college offices and the supervisors will receive copies of grade reports and other records for

students pursuing two degrees.

Minimum Graduation Average

A cumulative grade-point average of 2.0 in University of New Hampshire courses is the minimum acceptable level for undergraduate work in the University and for graduation. In addition, some majors require a grade-point average greater than 2.0 in certain courses or combinations of courses. The Academic Standards and Advising Committee examines the records of students periodically and may place academically deficient or potentially deficient students on warning, or may exclude, suspend, or dismiss those who are academically deficient.

Quota of Semester Credits

Students registering for more than 20 credits must receive the approval of the college dean. Additionally, students taking more than 20 credits in a single term will pay a per credit surcharge.

Baccalaureate and Associate in Arts undergraduates are assigned class standing on the basis of semester credits of academic work completed with a passing grade, as follows: to be a sophomore, 26 credits; to be a junior, 58 credits; to be a senior, 90 credits.

Residence

"Residence" means being enrolled in University of New Hampshire (including UNH Manchester) courses after admission to and matriculation in a degree program. Students who are candidates for a bachelor's degree must attain the last one-quarter of total credits for the degree in residence unless granted permission by the Academic Standards and Advising Committee to transfer part of this work from other accredited institutions.

Leave of Absence or Withdrawal from the University

Students who leave the University are required to file formal notification with the Registrar.



**About UNH**[General Information](#)[UNH Affirmative Action Statement](#)[University Calendar](#)[Campus Map](#)[Trustees and Administrative Officers](#)[Enrollment Statistics, Fall Semester](#)[About the Online Undergraduate Catalog](#)**Academic Information**[University Academic Requirements](#)[University Writing Requirement](#)[General Education Program](#)[Degree Requirements](#)[Majors, Minors, and Options](#)[Grades](#)[Academic Honesty](#)[Degrees and Major Programs of Study](#)[Program Abbreviations](#)[Special University Programs](#)[Course Descriptions](#)[Time and Room Schedule](#)[Faculty Listing](#)**Other University****Programs**[Graduate School](#)[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

University Academic Requirements ▼

« Majors, Minors, and Options

Majors and some interdisciplinary minors are described under their various schools and colleges; other interdisciplinary and intercollege minors are described in the section on **Special University Programs**.

Student-Designed Majors

See **Special University Programs** for requirements for a student-designed major.

Second Majors

Bachelor's degree students may choose to fulfill the requirements of two dissimilar major programs, provided they obtain the approval of their principal adviser and the dean(s) of the college(s) in which the programs are offered, and comply as follows:

1. If the two majors are offered in different schools or colleges within the University, the admissions requirements of each must be satisfied.
2. If the two majors have two distinct degrees; e.g., B.A., B.S., or some other designated degree, students must choose which of the two degrees is to be awarded and fulfill all requirements for that degree.
3. No more than eight credits used to satisfy requirements for one major may be used as requirements for the other major.

Minors

Bachelor's degree students may earn a minor in any undergraduate discipline designated by the University. A list of minors is available from the advising coordinator in each college or school (or see the program descriptions for each college or school in this catalog). Students must consult with their major adviser and also the minor supervisor. A minor typically consists

of 20 credits with C- or better and a 2.0 grade-point average in courses that the minor department approves. Courses taken on the pass/fail basis may not be used for a minor. No more than eight credits used to satisfy major requirements may be used for the minor. Students should declare an intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean to have the minor shown on the academic record.

Options

Some degree programs offer a selection of options (e.g., art history and art studio through the Department of Art and Art History). These concentrations allow students to specialize within a discipline. The choice of option is recorded on the student's transcript.

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About UNH

[General Information](#)

[UNH Affirmative Action Statement](#)

[University Calendar](#)

[Campus Map](#)

[Trustees and Administrative Officers](#)

[Enrollment Statistics, Fall Semester](#)

[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)

[Degrees and Major Programs of Study](#)

[Program Abbreviations](#)

[Special University Programs](#)

[Course Descriptions](#)

[Time and Room Schedule](#)

[Faculty Listing](#)

Other University

Programs

[Graduate School](#)

[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

Degrees and Major Programs of Study ▼

College of Liberal Arts

Please note that the teacher education division of the College of Liberal Arts coordinates the five-year undergraduate/graduate teacher education program.

***Designated degree (the name of the specialization is included on the diploma; e.g., B.S. in Chemistry).**

****Also Master of Arts in Teaching.**

Bachelor of Arts

Anthropology

Art History

Art Studio

Classics

Communication

Business Applications

Media Practices

English

English/Journalism

English Literature

English Teaching

European Cultural Studies

French

French Studies

Geography

German

Greek

History

Humanities

International Affairs (dual major)

Justice Studies (dual major)

Latin

Linguistics

Music

Liberal Studies
Music Theory
Performance Study
Preteaching

Philosophy

Political Science

Psychology

Russian

Sociology

Spanish

Theatre

Dance

Women's Studies

Bachelor of Fine Arts

Fine Arts

Bachelor of Music

Music Education

Performance

Theory

College of Engineering and Physical Sciences

Bachelor of Arts

Chemistry

Chemistry and Physics Teaching

Earth Science Teaching

Earth Sciences

Oceanography

Mathematics

Physics

Bachelor of Science

Chemical Engineering*

Bioengineering
Energy
Environmental Engineering

Chemistry*

Civil Engineering*

International Affairs (dual major)

Computer Engineering*

Computer Science*

Bioinformatics

Electrical Engineering*

Environmental Engineering*

Industrial Processes
Municipal Processes

Environmental Sciences*

Hydrology
Ecosystems
Soil and Watershed Management

Geology*

Information Technology

Mathematics*

Mathematics Education*

Elementary
Middle/Junior High
Secondary

Mathematics, Interdisciplinary

Computer Science
Economics
Electrical Science
Physics

Statistics

Mechanical Engineering*

Physics*

Astronomy

Chemical

Materials Science

College of Health and Human Services

Bachelor of Science

Communication Sciences and Disorders

Family Studies

Child and Family Studies

Young Child/Nursery-Kindergarten

Family Support/Family Life Education

Individual and Family Development

Health Management and Policy

Public Health

Kinesiology

Athletic Training

Exercise Science

Outdoor Education

Physical Education Pedagogy

Sport Studies

Nursing

Occupational Therapy

Recreation Management and Policy

Program Administration

Therapeutic Recreation

College of Life Sciences and Agriculture

Bachelor of Science

Animal Sciences

Bioscience and Technology

Equine Sciences

Preveterinary Medicine

Biochemistry

Biology

Ecology, Evolution, and Behavior

General Biology

Marine and Freshwater

Molecular, Cellular, and Developmental

Community and Environmental Planning

Dairy Management

Environmental Conservation Studies

Environmental Horticulture

Environmental Sciences*

Hydrology

Ecosystems

Soil and Watershed Management

Forestry

International Affairs (dual major)

Medical Laboratory Science

Clinical Chemistry

Clinical Hematology

Clinical Immunohematology

Clinical Microbiology

Microbiology

Nutritional Sciences

Plant Biology

Tourism Planning and Development

Wildlife Ecology

Zoology

Whittemore School of Business and Economics

Bachelor of Arts

Economics

Financial and Managerial Economics

International and Development Economics

Public Policy Economics

Bachelor of Science

Business Administration

Accounting

Entrepreneurial Venture Creation

Finance

Information Systems Management

International Business and Economics

Management

Marketing

Student-Designed

Economics

Hospitality Management

Thompson School of Applied Science

Associate in Applied Science

Applied Animal Science

Applied Business Management

Civil Technology

Community Leadership

Food Services Management

Forest Technology

Horticultural Technology

University of New Hampshire at Manchester

Associate in Arts

General Studies

Associate in Applied Science

Community Leadership

Associate in Science

Biological Sciences

Business Administration

Bachelor of Arts

Business

Communication Arts

English

History

Humanities

Politics and Society

Psychology

Undeclared

Bachelor of Science

Computer Information Systems

Electrical Engineering Technology*

Computer Technology

Mechanical Engineering Technology*

Sign Language Interpretation

Five-Year Degree Programs

Bachelor of Arts and Master of Education**

Bachelor of Science and Master of Education**

Bachelor of Science and Master of Science in Accounting

Bachelor of Science and Master of Science in Biochemistry

Bachelor of Science and Master of Science in Occupational Therapy

Interdisciplinary Majors

Bachelor of Arts/Bachelor of Science

International Affairs

Bachelor of Science

Environmental Sciences

Hydrology

Interdisciplinary Minors

Adolescent and Youth Development

Africana and African American Studies

Agribusiness

Air Force Leadership Studies

American Studies

Animal Behavior

Architectural Studies

Asian Studies

Child Life

Cinema Studies

Community Planning

Deaf and Hard of Hearing Studies

Disabilities

Environmental Engineering

Genetics

Gerontology

History and Philosophy of Science

Humanities

Hydrology

Justice Studies

Latin American Studies

Marine Biology

Materials Science

Ocean Engineering

Oceanography

Race, Culture, and Power

Religious Studies

Russian Studies

Sustainable Living

Technology, Society, and Values

War and Peace Studies

Wetland Ecology

Women's Studies

Advisory Committees

Prelaw

Premedical/Prehealth Care Professional

Graduate School

Master of Arts

Master of Science

Master of Arts in Liberal Studies

Master of Arts in Teaching

Master of Business Administration

Master of Education

Master of Fine Arts

Master of Public Administration

Master of Public Health

Master of Science for Teachers

Master of Social Work

Certificate of Advanced Graduate Study

Doctor of Philosophy

***Designated degree (the name of the specialization is included on the diploma; e.g., B.S. in Chemistry).**

****Also Master of Arts in Teaching.**

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[ADA Acknowledgement](#) | [Contact Us](#)

UNH Search:





About UNH

[General Information](#)

[UNH Affirmative Action Statement](#)

[University Calendar](#)

[Campus Map](#)

[Trustees and Administrative Officers](#)

[Enrollment Statistics, Fall Semester](#)

[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)

[Degrees and Major Programs of Study](#)

[Program Abbreviations](#)

[Special University Programs](#)

[Course Descriptions](#)

[Time and Room Schedule](#)

[Faculty Listing](#)

Other University

Programs

[Graduate School](#)

[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

Program Abbreviations ▼

College of Liberal Arts

ANTH	Anthropology
ARTS	Art and Art History
CHIN	Chinese
CLAS	Classics
COLA	College of Liberal Arts
CMN	Communication
EDUC	Education
ENGL	English
ECS	European Cultural Studies
FREN	French
GEOG	Geography
GERM	German
GREK	Greek
HIST	History

HUMA	Humanities
	International Affairs Dual Major
ITAL	Italian Studies
JPN	Japanese
JUST	Justice Studies Dual Major
LLC	Languages, Literatures, and Cultures
LATN	Latin
LING	Linguistics
MUSI	Music
MUED	Music Education
PHIL	Philosophy
POLT	Political Science
PORT	Portuguese
PSYC	Psychology
RS	Religious Studies
RUSS	Russian
SCSC	Social Science
SOC	Sociology
SPAN	Spanish

THDA **Theatre and Dance**

WS **Women's Studies**

College of Engineering and Physical Sciences

CHE **Chemical Engineering**

CHEM **Chemistry**

CIE **Civil Engineering**

CS **Computer Science**

ESCI **Earth Sciences**

ECE **Electrical and Computer Engineering**

ET **Engineering Technology**

ENE **Environmental Engineering**

IT **Information Technology**

International Affairs (dual major)

MS **Materials Science**

MATH **Mathematics and Statistics**

ME **Mechanical Engineering**

PHYS **Physics**

TECH **Technology**

College of Health and Human Services

COMM **Communication Sciences and Disorders**

FS **Family Studies**

HHS **Health and Human Services**

HMP **Health Management and Policy**

International Affairs (dual major)

KIN **Kinesiology**

NURS **Nursing**

OT **Occupational Therapy**

RMP **Recreation Management and Policy**

SW **Social Work**

College of Life Sciences and Agriculture

ANSC **Animal Sciences**

BCHM **Biochemistry and Molecular Biology**

BIOL **Biology**

CEP **Community and Environmental Planning**

ANSC **Dairy Management**

EREC **Environmental and Resource Economics**

Environmental Conservation Studies

DBS **Environmental Horticulture**

Environmental Sciences

Forestry

GEN **Genetics Program**

International Affairs (dual major)

LSA **Life Sciences and Agriculture**

MLS **Medical Laboratory Science**

MICR **Microbiology**

NR **Natural Resources**

NUTR **Nutritional Sciences**

PBIO **Plant Biology**

TOUR **Tourism Planning and Development**

Wildlife Ecology

ZOOL **Zoology**

Whittemore School of Business and Economics

ACFI **Accounting and Finance**

ADMN **Business Administration**

DS **Decision Sciences**

ECON **Economics**

HMGY **Hospitality Management**

International Affairs (dual major)

MGT **Management**

MKTG **Marketing**

Thompson School of Applied Science

AM **Agricultural Mechanization**

AAS **Applied Animal Science**

ABM **Applied Business Management**

CT **Civil Technology**

CSL **Community Leadership**

FSM **Food Service Management**

FORT **Forest Technology**

HT **Horticultural Technology**

COM **TSAS Communication**

MTH **TSAS Mathematics**

SSCI **TSAS Social Science**

University of New Hampshire at Manchester

ADM **Administration**

ASL **American Sign Language**

BIOL **Biology**

CA **Communication Arts**

CIS **Computer Information Systems**

ECN **Economics**

ET **Engineering Technology**

English

HIST **History**

HUMA **Humanities**

PS **Politics and Society**

Psychology

INTR **Sign Language Interpretation**

The Undeclared Option

UMIS **UNHM Independent Study**

UMST **UNHM Special Topics**

Continuing Education and Summer Session

Special University Programs

Fellowships Office

Hamel Center for Undergraduate Research

University Honors Program

Earth, Oceans, and Space

GERO **Gerontology**

INCO **Intercollege Courses**

IA **International Affairs (dual major)**

Marine Sciences

OE **Ocean Engineering**

Race, Culture, and Power

Student-Designed Majors

War and Peace Studies

Prelaw

Premedical/Prehealth Care Professional Study

Consortium (NHCUC) Student Exchange Program

Exchange Programs Within the U.S.

New England Land-Grant Exchange Program

UNH/UNHM Cross Registration

Study Abroad Programs

AERO **Aerospace Studies**

MILT **Military Science**

ROTC **Reserve Officer Training Corps Programs**

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UNH Search:





Special University Programs

Introduction Programs

Undergraduate Course Catalog 2009-2010 Special University Programs ▼

Introduction ▼

This section describes University-wide programs (including the University Honors Program and the Hamel Center for Undergraduate Research), interdisciplinary study opportunities, preprofessional programs (prelaw, premed/prehealth, and prevet), off-campus and study abroad programs, and other special programs at UNH.

For details about a specific program of study, please visit the [Programs](#) link.

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UNH Search:





Special University Programs

Introduction

Programs

University-Wide Programs

- Fellowships Office
- Hamel Center for Undergraduate Research
- University Honors Program

Interdisciplinary Programs

- Earth, Oceans, and Space
- Gerontology
- Intercollege Courses
- International Affairs (dual major)
- Marine Sciences
- Ocean Engineering
- Race, Culture, and Power
- Student-Designed Majors
- War and Peace Studies

Preprofessional Programs

- Prelaw
- Premedical/Prehealth Care Professional Study

Off-Campus Programs

- Consortium (NHCUC) Student Exchange Program
- Exchange Programs Within the U.S.
- New England Land-Grant Exchange Program
- UNH/UNHM Cross Registration

Study Abroad Programs

- Study Abroad Programs

Undergraduate Course Catalog 2009-2010

Special University Programs ▼

University-Wide Programs

Fellowships Office ▼

The UNH Fellowships Office provides information, counsel, and editorial support to high achieving students applying for national and international fellowships and scholarships. The office also assists faculty members who serve as mentors and recommenders and arranges for members of the faculty to take part in interviews and screening committees.

Established in 2005, the Fellowships Office is situated in the University Honors Program. In recruiting, advising, and supporting students with exceptionally strong records of academic excellence, the office staff collaborates campus-wide with other offices and departments of the University, including the Center for International Education and the Hamel Center for Undergraduate Research, in support of the University's Academic Plan.

The services of the Fellowships Office are available to undergraduates, graduate students, and alumni of the University. The Fellowships Office staff holds membership in the National Association of Fellowships Advisors. For more information, please contact Robert E. Stiefel, coordinator and adviser, Fellowships Office, 220 Hood House, (603) 862-0733; e-mail:

Robert.Stiefel@unh.edu.

[^ back to top](#)

Hamel Center for Undergraduate Research ▼

» <http://www.unh.edu/undergrad-research/>

In keeping with this research University's mission to create and disseminate knowledge, UNH's Hamel Center for Undergraduate Research offers undergraduates—working in concert with UNH faculty mentors—both funding and administrative support for individually designed academic projects ranging from laboratory research to humanist scholarship and fine and

Other Programs

- Aerospace Studies
- Military Science
- Reserve Officer Training Corps Programs

performing arts creations. Once completed, projects and their student authors may receive further support from Undergraduate Research for presentations at national and international conferences and for on-line publication in the undergraduate research journal, *Inquiry*.

Initially known as UROP (Undergraduate Research Opportunities Program), the Hamel Center for Undergraduate Research currently offers year-round academic opportunities both in the U.S. and abroad via competitive grant applications. Undergraduate Research Awards (URA) are available each semester (research time commitment is flexible); Summer Undergraduate Research Fellowships (SURF) awards for the U.S. and abroad offer support between academic years. By registering for INCO 590: Student Research Experience, students can work directly with faculty members while receiving academic credit and support for research expenses. The International Research Opportunities Program (IROP), a research summer abroad under the direction of both a UNH mentor and a colleague at the research location, offers nearly unlimited possibilities for exploration of any topic anywhere in the world (recent destinations: Mongolia, Thailand, Namibia, Germany, Australia; recent topics: moose habitats, neo-natal care in China, Bangkok police department organization, impressionist strategies for open-air painting).

Grants from the Hamel Center for Undergraduate Research open doors on real-world disciplinary practice, graduate schools, post-baccalaureate fellowships, and careers; undergraduate research develops first-hand knowledge of the world and one's place in it. For information about all awards, programs, and *Inquiry*, contact the Hamel Center for Undergraduate Research, 209 Hood House, (603) 862-4323, or visit the Web site at www.unh.edu/undergrad-research.

[^ back to top](#)

University Honors Program ▼

» <http://www.unh.edu/honors-program>

The University Honors Program (UHP), established by the Academic Senate in 1983, recognizes the achievements and capabilities of outstanding students. The program enriches undergraduate education by offering a personal, intensive approach to learning through small classes of 25 or fewer students. UHP students take a minimum of four honors-designated courses in their freshman and sophomore years, one of which must be an honors 444 seminar. These courses count toward the General Education requirements that all students must fulfill. Students also must complete their department's honors-in-major requirements in order to earn a "University Honors" designation upon graduation (see the "Honors-in-Major" description below).

Honors general education courses are listed in the Time and Room Schedule under "Honors." Enrolling in honors courses requires permission from the UHP Office, located at 211 Hood

House. Honors courses are open with special permission to non-honors students with a 3.2 or higher GPA on a space-available basis.

Honors-in-Major

Currently, there are more than 50 different departments from all five of the University's undergraduate schools and colleges offering honors-in-major programs. Academic work for honors in major requires a minimum of 16 credits, at least four of which will be devoted to a senior thesis project. Students should familiarize themselves with their departments' requirements and should meet with their departmental Honors liaison (www.unh.edu/honors-program/facliaisons.html). After successful completion of the program, students will earn an honors designation on their transcripts and diplomas.

Honors-in-Major Programs

Animal Science	Anthropology	Arts	Biochemistry
Biology	Business Administration	Chemistry	Chemical Engineering
Civil Engineering	Classics	Communication	Communication Disorders
Computer Engineering	Computer Science	Earth Sciences	Economics
Electrical Engineering	English	Environmental Conservation	Environmental Horticulture
Environmental & Resource Economics	Family Studies	Forestry	French
Geography	German	Health Management Policy	History
Hospitality Management	Humanities	Kinesiology	Linguistics
Mathematics	Mechanical Engineering	Medical Laboratory Science	Microbiology
Music	Nursing	Nutritional Sciences	Occupational Therapy
Outdoor Education	Philosophy	Physics	Plant Biology
Political Science	Psychology	Recreation Management Policy	Russian
Social Work	Sociology	Spanish	Theatre
Wildlife Management	Women's Studies	Zoology	

Admissions and Aid

Students gain admittance into the UHP in one of two ways:

1. The Office of Admissions identifies a number of qualified incoming freshmen to be admitted to the honors program.
2. Freshmen who demonstrate academic excellence are also invited to join the program.

To satisfy University Honors Program requirements, UHP students must meet designated grade-point average requirements. Students admitted to the program prior to the fall semester of 2008 must have a final cumulative grade-point average of 3.2, while students admitted to the fall semester of 2008 or thereafter must have a final cumulative grade-point average of 3.4. All students must meet the grade-point average requirements of their honors-in-major program.

Full-tuition and partial-tuition merit-based scholarships are available to a select number of incoming freshmen. Several partial-tuition scholarships are also awarded to upper-class students. For more information, contact Monica Chiu, Interim Director, University Honors Program, 211 Hood House, (603) 862-3928, or visit the UHP website at www.unh.edu/honors-program.

[^ back to top](#)

Interdisciplinary Programs

Earth, Oceans, and Space ▼

» www.eos.sr.unh.edu

Professor: Amitava Bhattacharjee, Lynn M. Kistler, Martin A. Lee, Eberhard Möbius, Joachim Raeder, Barrett N. Rock, Andrew A. Rosenberg, James M. Ryan

Program Director: Roy B. Torbert

Research Professor: David S. Bartlett, Janet W. Campbell, Terry Forbes, Christopher W. Glass, Philip A. Isenberg, R. Bruce McKibben, Charles W. Smith III, Robert W. Talbot

Affiliate Professor: John D. Aber

Associate Professor: Benjamin D. Chandran, James Connell, George C. Hurtt, Mark L. McConnell, Scott V. Ollinger, James M. Pringle

Research Associate Professor: Bobby H. Braswell, Jack E. Dibb, Mark A. Fahnestock, Charles J. Farrugia, Stephen E. Frolking, Antoinette B. Galvin, Erik A. Hobbie, Harald A. Kucharek, Marc R. Lessard, Clifford Lopate, Huiting Mao, Michael L. Prentice, Alexander A. P. Pszenny, Barkley C. Sive, Douglas C. Vandemark, Bernard J. Vasquez, Cameron P. Wake, Xiangming Xiao

Assistant Professor: Kai Germaschewski

Research Assistant Professor: Peter Forbes Bloser, Ulisse Bravar, Li-Jen Chen, Richard Lammers, Mary E. Martin, John R. Morrison, Chung-Sang Ng, Ruth K. Varner, Wilfred M.

Wollheim

The Institute for the Study of Earth, Oceans, and Space (EOS) is UNH's largest research organization and its first University Institute. It brings together under common themes a number of well-established research programs. Research activities are focused in EOS' four centers: the Climate Change Research Center, the Complex Systems Research Center, the Ocean Process Analysis Laboratory, and the Space Science Center.

EOS scientists are exploring processes on the Sun, solar influences on Earth and its magnetosphere, the chemistry and dynamics of the atmosphere, changing climate, and large-scale ecosystems in terrestrial and marine environments, emphasizing complex impacts on and by human activities. Research takes EOS investigators from the most distant energetic phenomena in the universe to the Earth's environment in space; to tropical, temperate, and boreal forests; from the coast of New Hampshire to the Gulf of Maine and the world's great oceans; from the grasslands and agricultural fields of China to those of the American Midwest; from the great ice sheets of Greenland and Antarctica to the summit of Mount Washington. EOS scientists and students use satellites, aircraft, ships, and computers to explore and investigate the most important processes in the universe, in our solar system, and on our planet.

The primary educational theme of the Institute is the training and mentoring of graduate students through participation in advanced research funded by major national and international organizations; for example, the National Aeronautics and Space Administration, the National Science Foundation, and the National Oceanic and Atmospheric Administration. However, EOS faculty teach and mentor undergraduate students as well, and there are numerous opportunities for undergraduates to participate in the research activities of the Institute. Undergraduates interested in EOS activities should contact either EOS faculty in their academic departments, or e-mail the EOS director's office, eos.director@unh.edu.

[^ back to top](#)

Gerontology (GERO) ▼

» [Click to view course offerings](#)

The gerontology interdisciplinary minor provides students with the opportunity to examine and evaluate the aging process as it affects the individual and society. Through in-depth inquiry, personal encounters, and classroom discussion, students develop an understanding of aging from a variety of perspectives. Students are encouraged to analyze the historical and philosophical foundations from which policies, programs, and professional activities affecting

the aged are developed, implemented, and evaluated.

Gerontology minors are required to take a minimum of 20 credits (five courses) from the following approved list.

GERO 600, Introduction to Gerontology

GERO 795, Independent Study (a practicum arranged by the coordinator of the minor, or by the appropriate designee)

FS 525, Human Development

HMP 755, Aging and Long-Term Care Policy

KIN 607, Biology of Aging

NURS 535, Death and Dying

NUTR 760, Geriatric Nutrition

OT 501, Developmental Tasks of Adulthood

PSYC 582, Adult Development and Aging

PSYC 741, Cognitive Aging

SW 525, Introduction to Social Welfare Policy

SW 550, Human Behavior and Social Environment I

SW 700, Social Gerontology

SW 701, Women and Aging

SOC 720, Current Developments in the Family: Aging and Late-Life Family

Students who wish to minor in gerontology should consult the College of Health and Human Services Dean's Office.

» [Click to view course offerings](#)

^ [back to top](#)

Intercollege Courses (INCO) ▼

» [Click to view course offerings](#)

Courses appearing in previous editions of this catalog under the caption INCO 404 Honors: Introductory Seminar are offered this year with subject codes and the course number 444H. For more information, see [University Academic Requirements](#). INCO 404 is reserved as a course designation for possible use in future years.

» [Click to view course offerings](#)

^ [back to top](#)

International Affairs (dual major) (IA) ▼

» [Click to view course offerings](#)

The Center for International Education offers undergraduate students the opportunity to pursue a dual major in international affairs.* The dual major requires completion of the interdisciplinary international affairs program and any other major. The purpose of the program is to expand students' global horizons, enhance their disciplinary major, and expand their career opportunities into the international arena.

Required Core Courses

IA 401, International Perspectives: Science, Business, and Politics

IA 501, Global Issues in International Affairs

IA 701, Seminar in International Affairs

Four Electives

Choose one from each of the program's four electives:

Foreign Area (to be taken prior to foreign experience)

Science, technology, and the private sector

Public policy

Theory in international affairs

Competency in Geography

Satisfactory score on geography exam, administered once a semester

Competency in a Foreign Language

Functional reading, writing, and speaking ability equivalent to the third-year, second-semester level

Foreign Experience

Minimum of eight weeks in a non-English speaking country

The courses in the dual major program are multidisciplinary, taught by faculty from many different departments in the University. They are designed to help students appreciate the complex interrelationships and interdependencies among nations and peoples and to equip students with the analytical skills and broad perspectives necessary for both public and private sector international careers.

Students who wish to declare international affairs must earn a C or better in IA 401, have declared (or be prepared to declare) a disciplinary major, and have a 2.5 cumulative grade-

point average. After declaration, students are expected to maintain at least a 2.5 grade-point average, which is the minimum required for study abroad at UNH.

IA 401, a prerequisite for IA 501, should be taken no later than spring of the sophomore year. IA 501 should be taken prior to foreign experience. The geography exam is offered every semester. Students may take the exam three times, but must pass it before taking IA 701.

The foreign experience (usually completed during the junior year), the geography exam, and the foreign language requirement are completed before taking IA 701 in the senior year. To acquire the knowledge, skills, and experience that come from residence in a foreign culture, students may spend an academic year, semester, or summer in an academic institution, in an internship with a private or public organization, or in purposeful travel/research. All foreign experiences must be pre-approved by the IA major adviser or the University Committee on International Studies.

The completion of the dual major requires no additional credits for graduation beyond the 128 required of all UNH students. All coursework required for international affairs must be completed with a grade of C or better. For information, contact the Center for International Education, Hood House, (603) 862-2398, www.unh.edu/cie.

* The Department of Civil Engineering has worked with the UNH Center for International Education to develop a dual-major program in civil engineering and international affairs. Civil engineering students participating in this program develop a proficiency in a foreign language and spend at least one semester studying abroad in that language. Students can complete this program in five years or less and do not need to have existing skills in a foreign language to participate. For more information, contact Ray Cook at (603) 862-1411 or by e-mail to ray.cook@unh.edu.

» [Click to view course offerings](#)

^ [back to top](#)

Marine Sciences ▼

Professor: Kenneth C. Baldwin, Christian P. De Moustier, Wayne R. Fagerberg, Larry G. Harris, W. Huntting Howell, Aaron B. Margolin, Arthur C. Mathieson, Larry A. Mayer, Subhash C. Minocha, Christopher D. Neefus, Andrew A. Rosenberg, Stacia A. Sower, Paul C. Tsang, Charles W. Walker, Colin Ware, Winsor H. Watson III

Research Professor: Janet W. Campbell, Christopher W. Glass, Raymond E. Grizzle, Lloyd

Huff, Michael P. Lesser, Frederick T. Short

Affiliate Professor: Andrew Armstrong

Associate Professor: Mimi Larsen Becker, David L. Berlinsky, Jessica A. Bolker, Allen D.

Drake, Anita S. Klein, James M. Pringle, Robert A. Robertson

Research Associate Professor: Lee Alexander, David M. Burdick, Brian R. Calder, Pingguo He, Stephen H. Jones, Maryellen M. Lutcavage, John R. Morrison, Yuri Rzhhanov, Douglas C.

Vandemark, Cameron P. Wake, Larry G. Ward

Assistant Professor: Joel E. Johnson, Linda Kalnejais

Research Assistant Professor: Luciano Fonseca, Thomas Weber

Clinical Professor: Elise R. Sullivan

Extension Associate Professor: Julia M. Peterson

Extension Assistant Professor: Kenneth J. La Valley

Undergraduate programs in marine science and ocean engineering at the University of New Hampshire reflect the diversity of the ocean itself and are enriched by easy access to a variety of natural laboratories, including tidal rivers, estuaries, coastal areas, and the open ocean.

Studies in marine science and ocean engineering are offered through various departments of the University. Students identify the discipline (ranging from zoology through earth sciences to mechanical engineering) they like best and pursue marine specializations related to that area of study. Studies can take place in research laboratories on campus as well as at various field stations or aboard UNH research vessels.

Marine Program

The Marine Program provides a campus-wide umbrella for marine activities and maintains specialized facilities to support efforts of faculty in individual departments and organized research units. Academic programs are focused broadly on marine biology, ocean engineering, and ocean science, and the Marine Program supports experiential learning opportunities beyond the formal classroom through three centers: the Center for Marine Biology, the Center for Ocean Engineering, and the Center for Ocean Sciences.

Estuarine research is pursued at the Jackson Estuarine Laboratory on Great Bay, which is designated a National Estuarine Research Reserve. The Coastal Marine Laboratory, a major running-seawater facility, is located in nearby Newcastle. Research on salmonids and other freshwater animals is conducted at the Anadromous Fish and Aquatic Invertebrate Research Laboratory, located near the Durham reservoir. The Institute for the Study of Earth, Oceans, and Space is a major center for ocean sciences research. The on-campus Chase Ocean Engineering Laboratory houses both educational and research activities. Off-shore and coastal studies are carried out aboard the University's 50-foot research vessel, the *Gulf Challenger*.

During the summer, students may live and study at the Shoals Marine Laboratory on Appledore Island, one of the Isles of Shoals. There, UNH and Cornell University cooperatively offer undergraduate courses in marine sciences in a summer field laboratory setting. Each of the marine program facilities features modern, specialized equipment and opportunities for undergraduate students to work and carry out independent research.

Curricula in the Marine Sciences

There are currently two undergraduate majors and four minors in the marine sciences. The College of Life Sciences and Agriculture offers a B.S. in biology with an option in marine and freshwater biology (see biology under COLSA) and the Department of Earth Sciences offers an option in oceanography as part of its B.A. Earth Sciences program. In addition to these offerings, students can declare a major in any established discipline and augment it with a minor in marine biology, ocean engineering, oceanography, or wetland ecology.

Students are encouraged to declare their intention to follow these programs as soon as possible.

Marine Biology Minor

The minor is designed to provide a foundation in marine biology and related sciences to any UNH undergraduate student with the exception of students enrolled in the MFB option of the Biology Program. It is offered through the Department of Biological Sciences. The minor consists of 20 credits with grades of C- or better and no pass/fail courses. No more than eight major requirement credits may be used towards the minor. All courses in the program are selected in consultation with the minor adviser. Contact Larry Harris at (603) 862-3897 or e-mail lharris@unh.edu, Department of Biological Sciences, for more information.

Students who want to minor in marine biology must take one introductory course (ESCI 501, Introduction to Oceanography; ZOOL/PBIO 503, Introduction to Marine Biology; or ZOOL 674, Field Marine Science) and four courses concentrating on an area of interest. For example, a student interested in marine mammals might take Mammalogy (ZOOL 712), Marine Invertebrate Evolution and Ecology (ZOOL 628), Marine Vertebrates (ZOOL 753), and Fisheries Biology (ZOOL 772). Courses commonly taken as part of the minor include BCHM 702; EREC 611; NR 610; PBIO 625, 721, 722, 723, 725, 727; ENE 747; MICR 707, 714; ZOOL/PBIO 503; and ZOOL 545, 570, 610, 611, 628, 674, 675, 710, 711, 721, 725, 730, 734, 750, 751, 753, 772, 773, 795. In addition, students are encouraged to become involved in a research project, either by working in a professor's laboratory or by participating in the Undergraduate Ocean Research Program (TECH 797).

Students should declare their intention to minor in marine biology before the end of the junior

year. During the final term, students should apply to the dean to have the minor shown on their transcript.

Ocean Engineering Minor

The ocean engineering minor allows undergraduate engineering students to acquire a nucleus of knowledge about engineering pertaining to the ocean and the coastal zone.

To meet the University minor requirement, students must satisfactorily complete a minimum of five courses from the following list: ESCI 501, Introduction to Oceanography; OE 690, Introduction to Ocean Engineering; ESCI 752, Chemical Oceanography; ESCI 758, Introductory Physical Oceanography; ESCI 759, Geological Oceanography; OE 710, Ocean Measurements Lab; OE 744, Corrosion; OE 745, Environmental Acoustics I; OE 754, Ocean Waves and Tides; OE 756, Principles of Naval Architecture and Model Testing; OE 770, Fundamentals of Ocean Mapping; OE 771, Geodesy and Positioning for Ocean Mapping; OE 785, Environmental Acoustics II; OE 795, Special Topics in Ocean Engineering; ENE 747, Introduction to Marine Pollution and Control; OE 757, Coastal Engineering and Processes; and TECH 797, Undergraduate Ocean Research Program. Ordinarily, students typically take ESCI 501, TECH 797, and OE 690 plus two additional engineering courses from the above list to complete the minor.

Students wishing to take the ocean engineering minor should indicate their interest to the ocean engineering minor adviser, Kenneth C. Baldwin, (603) 862-1898, Chase Ocean Engineering Laboratory, no later than the beginning of the junior year. During the final semester, students must apply to the dean to have the minor shown on their transcript.

Oceanography Minor

The minor in oceanography is available to all students in the University interested in obtaining a broad background in oceanography and is offered through the Department of Earth Sciences. The minor consists of a minimum of five courses with grades of C (2.0) or better and no pass/fail courses. No more than 8 major requirement credits may be used. All courses in the program are selected in consultation with the oceanography minor adviser, James Pringle, (603) 862-5000, Department of Earth Sciences.

Required courses include 1) ESCI 501, Introduction to Oceanography; 2) two of the following courses: ESCI 750, Biological Oceanography; ESCI 752, Chemical Oceanography; ESCI 758, Introductory Physical Oceanography; or ESCI 759, Geological Oceanography; 3) any two of the following courses, or a suitable substitute approved by the minor adviser (at least one of these courses should be in the biological sciences): PBIO 625, 722; CIE 757; ENE 747, 753; ESCI 653, 658, 754, 756, 760, 770, 771; MICR 707; OE 690, 710, 753, 754, 757, 785; EREC 611;

TECH 797; ZOOL 503, 560, 674, 720, 725, 730, 751, 753, 772, 775; or ZOOL/ESCI/750.

Students are encouraged to declare their intention to minor in oceanography before the end of the junior year. During the final semester, students should apply to the dean to have the minor shown on their transcript.

Shoals Marine Laboratory

The University of New Hampshire, in cooperation with Cornell University, offers a summer field program in marine sciences on Appledore Island at the Isles of Shoals. Undergraduate courses introduce students to a broad array of marine sciences, including marine biology, field ecology, and marine organisms. The four-week, 8-credit general courses, Field Marine Science (ZOOL 674) and Field Marine Biology and Ecology (ZOOL 675), are offered in June and mid-July, respectively, each summer. They draw upon the backgrounds of numerous faculty and others associated with marine science and fisheries. There are daily lectures and work in laboratory and field. The courses are graded on a letter-grade basis; at least one full year of college biology or the equivalent is a prerequisite. There are a variety of opportunities for undergraduate research at SML, including both credit courses and paid internships.

Other credit courses offered include marine botany, invertebrate zoology, experimental ecology, ornithology, animal behavior, fish ecology, coastal ecology and bioclimatology, marine vertebrates, underwater research, and biological illustration. SML courses can be used to fulfill requirements in various biology-related UNH major curricula. SML courses may be taken for Honors credit by UNH students with permission.

Shoals offers financial aid to UNH students (outside of the normal UNH financial aid packages). For further information, contact Jessica Bolker at (603) 862-0071, or e-mail jbolker@cisunix.unh.edu, Department of Biological Sciences, and consult the web site at www.marine.unh.edu/sml/index.html.

Diving Program

UNH has maintained an active research diving program for the past 36 years to provide assistance for faculty, staff, and students with both instruction and support for research diving, allowing many certified student divers to participate in University-sponsored underwater research projects. Today the UNH Diving Program consists of two areas: the academic portion where students, faculty, and staff may enroll in courses for academic credit (through the Department of Kinesiology), and the research portion, which supports faculty and student divers in University-sponsored underwater projects.

For further information about the UNH Diving Program as well as the offered workshops in

rescue diving and diving accident management, contact Liz Kintzing (ek@cisunix.unh.edu), diving program officer, through the Diving Program Office at (603) 862-3896.

Marine Research

There are many opportunities for undergraduates to participate in marine research under the supervision of UNH faculty.

The University has a Sea Grant College Program that supports research, teaching, and service projects through numerous partnerships with the National Oceanic and Atmospheric Administration. Marine research projects are also supported through the National Science Foundation, the Environmental Protection Agency, the Office of Naval Research, and other state and federal agencies, foundations and private donors.

Extensive research, interdisciplinary academic programs, and the extraordinary variety of marine environments and facilities allow students to observe and learn about the frontiers of science and technology being explored in the ocean. For further information about marine opportunities, contact the Marine Program Office in the Jere A. Chase Ocean Engineering Laboratory or through the Marine Program Web site at marine.unh.edu.

[^ back to top](#)

Ocean Engineering (OE) ▼

» [Click to view course offerings](#)

Professor: Kenneth C. Baldwin, Barbaros Celikkol, Christian P. De Moustier, Larry A. Mayer, M. Robinson Swift, Colin Ware

Research Professor: Lloyd Huff, James Irish

Affiliate Professor: Andrew Armstrong

Associate Professor: Allen D. Drake, Diane Foster, Igor I. Tsukrov

Research Associate Professor: Brian R. Calder, Thomas C. Lippmann, Yuri Rzhano, Larry G. Ward

Affiliate Associate Professor: David Monahan

Research Assistant Professor: Luciano Fonseca, Kurt Schwehr, Thomas Weber

Affiliate Assistant Professor: John Kelley

Race, Culture, and Power ▼

How does the category of race shape our lives, our politics, and our possibilities? Events in this

country and internationally constantly remind us that race is an explosive issue. To be able to function as citizens of the world, one must understand the dynamics of race, culture, and power.

This minor reflects intellectual currents now being felt around the world. It prepares students to live in the twenty-first century.

Courses for the minor enable students to develop critical perspectives on the ways in which cultural differentiation and racial explanations have been used to maintain social, economic, and political power and justify inequalities and injustices.

To complete the minor, students are required to take one of the following three courses: INCO 450, an introductory course; ANTH 760, Race in Global Perspectives; or EDUC 797/897, Teaching Race; in addition to 16 credits of electives. Students must earn a C- or better in each course, and must maintain a 2.0 grade-point average in courses taken for the minor.

Elective Courses

Electives are approved for the minor and announced each semester in the Time and Room Schedule. Ordinarily, not more than two electives may be taken from the same academic department. A relevant internship may be substituted for one of the electives. Many electives are special topics and require student petition. Students should consult the minor coordinator before registration.

For further information please contact the coordinators, Nina Glick Schiller, Department of Anthropology, (603) 862-1848, ninaglickschiller@unh.edu; Justus Ogembo, Department of Anthropology, (603) 862-2401, jogembo@unh.edu; or Mimi Winder, Administrative Assistant, Race, Culture, and Power Office, 329 Huddleston, (603) 862-3753, rmp.minor@unh.edu.

[^ back to top](#)

Student-Designed Majors ▼

Under special circumstances, students may design their own majors. This option is offered for highly motivated and self-disciplined students who seek a course of study that is not available through existing programs at the University. It allows students, with the close supervision of faculty members, to cross department and college lines and to create educational experiences on and off campus as part of individual programs of study.

Student-designed majors are administered by a committee of elected faculty that operates through the Office of the Provost and Executive Vice President. Students who want to design their own majors are expected to give the committee evidence of careful thought and planning in a proposal submitted on or before October 15 during the student's junior year. The committee will convene soon after October 15 to review the proposals.

Submissions after this deadline are strongly discouraged, but if an application is late for reasons beyond the student's control, the SDM Committee may review the application on a case-by-case basis.

Proposal guidelines are available in the Office of the Provost and Executive Vice President and on the Academic Affairs Web site, www.unh.edu/academic-affairs. Click on "Undergraduate Students."

[^ back to top](#)

War and Peace Studies ▼

War is the scourge of humankind. Tribes, cities, and nations have gone to war against each other for as long as we have records; only here and there, among some small "precivilized" groups, has war been absent or strictly controlled. For as long as we have records, too, we find thoughtful people crying out against war and pleading for peace, arguing for principles to govern war's conduct and laboring to mitigate war's effects, imagining a world where war is abolished, and taking steps to bring that world about. As the scale of war has grown to a size now great enough to devastate the entire globe in a single conflict, more and more people have devoted themselves to preventing war and finding acceptable substitutes. In the nuclear era, age-old moral and religious discussion has joined with historical study and practical, even technical, research to produce a set of related disciplines sometimes called "war and peace studies."

To meet the requirements for the war and peace studies minor, students must complete two core courses (8 credits) and 12 credits of elective courses with a grade of C- or better. Ordinarily, no two electives (or no more than 4 credits) may be taken from the same academic department. No elective may count for both a student's major and the war and peace minor. A relevant internship may be substituted for one of the electives. As they are announced, other relevant courses may be added to the list of acceptable electives. Students may request others not so listed. Courses carrying fewer than four credits will be counted as partial satisfaction of an elective requirement. If a good case can be made for it, a departure from any of these rules may be approved by the adviser for the minor and the coordinator.

All students will be assigned an adviser from the membership of the Committee on War and Peace Studies, ordinarily one not in the student's major department. The adviser will assist students in constructing a coherent program that suits their particular interests.

The core courses are INCO 401, War, and INCO 402, Peace. Occasionally a new core course may be included.

Departmental elective courses will include courses such as these

AERO 681, National Security Forces in Contemporary American Society (3 cr.)

CMN 456, Propaganda and Persuasion

HIST 617, Vietnam War

HIST 537, Espionage and History

NR 435, Contemporary Conservation Issues and Environmental Awareness

POLT 562, Strategy and National Security Policy

POLT 778, International Organization

SOC 780, Social Conflict

Special offerings that may serve as electives

ANTH 797, Advanced Topics in Anthropology (e.g., War and Complex Society)

ECON 698, Topics in Economics (e.g., Economics of War and Peace)

ENGL 595, Literary Topics; ENGL 693, 694, Special Topics in Literature; ENGL 797, 798, Special Studies in Literature (e.g., Literature of World War I, Literature of the Vietnam War)

HIST 600, Advanced Explorations (e.g., Comparative Revolutions)

HUMA 730, Special Studies (e.g., Nonviolence, Thinking about War and Peace)

INCO 404P, Honors: Introductory Seminar (e.g., Understanding War)

POLT 660, Special Topics in International Politics (e.g., Arms Control and Disarmament)

For more information, contact Michael Ferber, Department of English, (603) 862-3973.

[^ back to top](#)

Preprofessional Programs

Prelaw ▼

Many graduates of UNH attend law school. The faculty and staff advisers of the Prelaw Advising Committee work closely with students and alumni to identify interests and explore opportunities within legal education. The committee helps students undertake the best possible preparation for legal education while also bringing the excitement of law to UNH students. The

committee achieves this goal through careful consideration of the American Bar Association's (ABA) statement on preparation for legal education (found on the Web at www.abanet.org/legaled/prelaw/prep.html).

In that statement, the ABA explains why no single major or course is required or recommended for students wishing to explore or prepare for legal study. The ABA does, however, describe certain skills and values that are essential to success in law school and to life as a lawyer. These include analytic and problem solving skills, critical reading abilities, writing skills, oral communication and listening abilities, general research skills, task organization and management skills, and the values of serving others and promoting justice.

Prelaw Advising implements the ABA statement by working with student interests and strengths to select UNH courses, internships, and experiences that will develop those skills and values. Programmatically, the committee provides a prelaw resource library, visits to local law schools, and sponsors discussions with law school students, admission and financial aid representatives, and with members of the legal community. The committee also provides support for LSAT preparation, law school search, writing personal statements, and the application and selection processes.

Interested students should register with the committee by contacting the Prelaw Advising Office, 106 Hood House, at (603) 862-3485. Additional information is available at www.unh.edu/prelaw-advising/.

[^ back to top](#)

Premedical/Prehealth Care Professional Study ▼

The Pre-professional Health Programs Advising Office in Hood House provides advising for all students preparing for postgraduate careers in medicine, dentistry, optometry, chiropractic, podiatry, physical therapy, and physician assistant programs (for information on the preveterinary medicine option in animal sciences, see Animal Sciences major). There is no premedical or pre dental major at UNH. A student's major is not considered in the medical school application process and students from majors in all five UNH colleges have been admitted to postgraduate health professional programs. Though premedical/pre dental is not a major, interested students are expected to register with the Pre-professional Health Programs Advising Office in Hood House as soon as possible so as to be kept informed of important events, opportunities, and deadlines regarding preparation for application.

A premedical/pre dental program at UNH consists of the following:

1. Taking the prerequisite courses for admission to a health professional program. Medical and dental schools generally require biology, physics, general chemistry, and organic chemistry—all two semesters each with laboratory. A semester of biochemistry is also required. A year of English is required, as is one year of math including at least one semester of calculus. Prerequisite courses can be taken as part of a student's major curriculum, as part of the general education requirements, or as electives.

2. Gaining volunteer/health care experience. Applicants to health professional programs will be expected to demonstrate a sustained involvement in volunteer and community service. A significant portion of this experience must take place in a health professional setting and include direct patient contact. Most students gain this experience by volunteering at a hospital, though volunteer opportunities are available in a wide range of settings, including nursing homes and community clinics.

3. Preparing for the requisite entrance exam. Students applying to medical school are required to take the MCAT exam. Students applying to dental programs are required to take the DAT, and applicants to optometry programs take the OAT. The MCAT, DAT, and OAT are standardized, comprehensive exams that test students' knowledge of biological and physical sciences as well as verbal reasoning and writing skills. Exams are usually taken by students no earlier than the spring of their junior year and should be taken only if the student has completed or is within a month of completing prerequisite coursework. Students applying for physician assistant and physical therapy programs may be required to take the GRE, a more general exam similar to the SAT in structure and content.

Application process

The Pre-professional Health Programs Advising Office works with the Premedical/Pre dental Advisory Committee—a body of 10-12 UNH faculty members with interest and/or experience in medical/dental education—to provide students with comprehensive, confidential evaluation services at the time of application. An orientation meeting is held each September to outline the application process and establish timetables/deadlines. Students should note that the medical and dental school application process begins a full two years before matriculation; i.e., in the fall of a student's junior year if they wish acceptance following graduation. However, a delay of a year or more between graduation and admission is neither unusual nor detrimental, and in many cases, students can use this time to improve their credentials by taking additional courses and/or gaining exposure to the profession.

It is important that students understand that in order to gain admission to a health professional program they must not only satisfy the prerequisite requirements, they must satisfy these requirements at a high level of achievement. The Pre-professional Health Programs Advising

Office can provide students with information on competitive grade-point average and entrance exam scores for each of the postgraduate health professional programs.

The Pre-professional Health Programs Advising Office is located in Hood House and can be contacted by phone at (603) 862-2064 or by e-mail at Premed.Advising@unh.edu. The office also has a Web site at www.unh.edu/premed-advising.

[^ back to top](#)

Off-Campus Programs

Consortium (NHCUC) Student Exchange Program ▼

Under the Student Exchange Program of the New Hampshire College and University Council (NHCUC), UNH students may be eligible to enroll for one course per semester, one semester of courses, or a full year of coursework at a member school on a space-available basis. The NHCUC exchange allows matriculated undergraduates to use educational resources that are not available at the home campus and are considered appropriate for their degree programs. This exchange will be used only when academic reasons or other special circumstances warrant it. Approval of the UNH adviser and college dean is required, and students must meet eligibility standards. Schools in the NHCUC consortium include Chester College, Colby-Sawyer College, Daniel Webster College, Franklin Pierce University, New England College, Southern New Hampshire University, Rivier College, Saint Anselm College, UNH Durham, UNH Manchester, Keene State College, and Plymouth State University. Students will remain as degree candidates and continue to pay normal UNH tuition and fees, but must make their own room and board arrangements if they plan to spend a full semester at another consortium school. For more information and application forms, students should contact the National Student Exchange Office, Hood House, (603) 862-3485.

[^ back to top](#)

Exchange Programs Within the U.S. ▼

The University offers many opportunities for exchange study with other institutions within the U.S. Exchange programs provide an educational experience in a different environment within North America. It is hoped that students will develop new ways of viewing the country and expand their knowledge of our complex society.

Through the National Student Exchange (NSE), UNH students can study at more than 190 colleges and universities throughout the U.S., U.S. territories (Guam, Puerto Rico, and

U.S. Virgin Islands), and Canada. Several historically black colleges and universities are exchange members, and several are members of the Hispanic Association of Colleges and Universities. In addition, a one-semester or full-year exchange program is available with the University of California, Santa Cruz.

To qualify for exchange study, students must be full-time undergraduate degree candidates with at least a 2.5 grade-point average, have declared a major, receive permission from their college dean and adviser, and receive permission from the exchange coordinator.

Students in exchange programs are expected to return to UNH to complete their studies. Participation in an exchange program does not disrupt the continuity of a student's educational process. Exchange program participants continue to maintain their status as UNH students, even while temporarily located at another university. Students thus do not have to withdraw from UNH and later be readmitted. Maintaining UNH student status also facilitates reentry into classes, on-campus housing, and many other dimensions of University life.

Interested students should contact the National Student Exchange Office in Hood House, (603) 862-3485, or visit www.unh.edu/nse.

[^ back to top](#)

New England Land-Grant Exchange Program ▼

In order to provide students at the New England land-grant universities with expanded access to unique programs and faculty expertise, the institutions have agreed to encourage student exchanges of one, but not more than two, semesters. To qualify, students must identify a course or combination of courses related to their area of academic interest and not available on their home campus, be degree candidates in good standing with at least a 2.5 grade-point average, be at least first-semester sophomores, and receive permission from the appropriate university exchange authorities at both the home and host institutions. Interested students should contact the National Student Exchange Office, Hood House, (603) 862-3485.

[^ back to top](#)

UNH/UNHM Cross Registration ▼

Matriculated students at the University of New Hampshire and the University of New Hampshire at Manchester may take UNH courses at either location. Students must have permission from their academic advisers and must register for the courses on a space-available basis during the open registration period for each campus. For more information,

students should contact Donna Reed, associate registrar, Stoke Hall, (603) 862-1590, or Nikki Blodgett, assistant registrar, UNH Manchester, (603) 641-4141.

[^ back to top](#)

Study Abroad Programs

Study Abroad Programs ▼

» <http://www.unh.edu/cie/>

The University offers opportunities for full-time degree candidates meeting eligibility criteria to study abroad in many foreign institutions. UNH-managed programs are described in this section. Students may study abroad in other locations through UNH-approved programs by using the intercollegiate option (INCO). All students who study abroad pay a study abroad or exchange fee. For information on study abroad programs, students should contact the Center for International Education or the department identified in the UNH-managed program descriptions.

Study Abroad Eligibility

Students enrolled in UNH baccalaureate degree programs may participate in approved study abroad programs provided they meet the following eligibility criteria:

1. must have earned at least 32 credit hours, at least 12 of which must have been earned at the University of New Hampshire at the baccalaureate level;
2. must have a minimum of 2.5 cumulative grade point average at the time of application to and at the time of departure for the study abroad program. Study abroad programs provided by UNH or other approved institutions may have higher minimum GPA requirements;
3. must have a declared major. Transfer students, including transfer students from the Thompson School of Applied Science (TSAS) are not eligible to study abroad during the first semester of their baccalaureate program at UNH.

Students enrolled in the degree programs of the Thompson School of Applied Science may participate in approved study abroad programs appropriate for two-year degree candidates. TSAS students must meet the following eligibility criteria:

1. must have earned 32 credits, at least 12 of which must have been earned at the University of New Hampshire at the associate degree level;
2. must have a minimum 2.5 cumulative grade point average at the time of application to and at the time of departure for the study abroad program. Study abroad programs provided by UNH or other approved institutions may have higher minimum GPA requirements.

Canada

New England/Québec Student Exchange Program

Students may spend one or two semesters at one of twenty French- or three English-speaking universities in the province of Québec. Eligibility requirements include a command of the language of the host campus, U.S. citizenship, and at least sophomore standing. Contact the Center for International Education, Hood House, (603) 862-2398 or study.abroad@unh.edu.

New England/Nova Scotia Student Exchange Program

Students may spend one or two semesters at one of eleven participating Nova Scotia institutions offering programs in the liberal arts, agriculture, business, engineering, art, and other fields. Eligibility requirements include U.S. citizenship and at least sophomore standing. Contact the Center for International Education, Hood House, (603) 862-2398 or study.abroad@unh.edu.

National Student Exchange

Additional opportunities for exchange in Canada are available through the National Student Exchange (NSE) program. Eight campuses in six Canadian provinces are available for one semester or full-year exchange. Contact National Student Exchange Office, 106 Hood House, (603) 862-3485 or visit www.unh.edu/nse.

England

Cambridge Summer Program

For six weeks each summer, students from across the United States have the opportunity to participate in the UNH Cambridge Summer Program held at Cambridge University in England. Program participants take courses in English and history, taught by faculty from Cambridge University and UNH. Students live and study at Gonville and Caius College, one of the oldest colleges at Cambridge. The program is open to students who have successfully completed at least one year of college. Participation fulfills UNH's general education requirement under Group 5. For more information, contact the director at the Department of English, Cambridge Program Office, 53 Hamilton Smith Hall, www.unh.edu/cambridge.

Lancaster Exchange Program

Lancaster University is a comprehensive university similar to UNH in size, setting, and program offerings. The program allows students to spend a semester or a year in Lancaster while still making normal progress toward their UNH degree. Contact the Center for International Education, Hood House, (603) 862-2398 or e-mail study.abroad@unh.edu.

London Program

At Regent's College in the heart of London, the University of New Hampshire sponsors courses in British studies, the arts, humanities, and a wide range of other basic subjects offered during

the fall and spring semesters. Taught by British and American faculty members, many of the courses are specifically concerned with British studies or have a special British emphasis. The program allows students to spend a semester or year in London while still making normal progress toward their U.S. degrees. To be eligible, students must have successfully completed at least 32 credit hours with an overall grade-point average of at least 2.5, and declared a major. Interested students should contact the program coordinator, London Program Office, 53 Hamilton Smith Hall, www.unh.edu/london.

France

Summer French Language Program in Brest

Qualified students in any major may take the equivalent of FREN 503 and/or 504, the UNH intermediate French sequence; the equivalent of FREN 631 and/or 632; and/or FREN 695, a more advanced language course not offered on the UNH campus; or Fren 635, Intro. to Business French. See the UNH online catalogue for specific course prerequisites. A port city in the province of Brittany in western France, Brest is the sister city of Portsmouth, New Hampshire.

The courses are offered summer only in intensive four-week sessions at the Centre International d'Etudes des Langues (CIEL). Students generally live with local families and attend classes a total of 24 hours per week. Students receive UNH credit for these courses. For more information contact Barbara Cooper, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-3771, or visit www.unh.edu/brest.

Junior Year Program in Dijon

The Department of Languages, Literatures, and Cultures sponsors a junior year and a spring semester abroad programs at the University of Burgundy in Dijon, France. Students generally live with French families in the heart of this historic city and take classes at the university with French students. Credit for all work completed successfully will be automatically transferred to UNH. The program is open to those French majors who have completed FREN 631-632 and FREN 651-652 or equivalent, and to French minors who have completed FREN 631-632 and FREN 651 or 652 or equivalent, with a 2.5 GPA or better. For more information, see Claire Malarte Feldman, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-1303, or visit www.unh.edu/dijon.

German-Speaking Countries

Students may study for a semester or a full year through any approved American study abroad program or, in special cases, by applying directly to universities in Germany, Austria, or Switzerland. Most programs require a minimum grade-point average of 3.0 and a B average in the major. Programs vary greatly in academic focus, size, language of instruction, living

arrangements, services and extra-curricular programming provided, and cost. Some programs accept students only for a full year. Study abroad goals and requirements should be discussed with a German adviser as early as freshman year. Program and application materials may be obtained through the Center for International Education in Hood House. For credit in the German major or minor, the program must be conducted in German. After consultation with the major adviser and the study abroad adviser to establish possible UNH course equivalents and fulfillment of major and/or general education requirements, students submit a Prior Approval Form indicating the planned course of study abroad. To ensure proper credit transfer, especially if seeking to transfer credits directly from a university abroad without benefit of an American program, students should keep syllabi, course descriptions, and all written work. Students planning study at a university in Germany, Austria, or Switzerland should note major differences in academic calendar (winter semester October-February, summer session April-July), which may be shortened by the American sponsor university to accommodate U.S. academic calendars.

Junior Year Program in Salzburg, Austria

Students who have completed GERM 504 or equivalent may enroll for one or both semesters at the University of Salzburg through the New England Universities Consortium. UNH faculty contact person is Ed Larkin, (603) 862-3549.

Intensive Language Courses through the Goethe Institut

Students needing to advance rapidly in proficiency beginning at any level and at any time of year may enroll at a Goethe Institut center in Germany for courses ranging from eight to 16 weeks and receive UNH equivalent credit depending on level of exam passed upon completion of course. UNH faculty contact person is Mary Rhiel, (603) 862-0063, or the Center for International Education, (603) 862-2398, or study.abroad@unh.edu.

German Internship

Students who have completed GERM 504 or equivalent may apply for an unpaid 4-8 credit internship placement in a German-speaking firm or organization. The internship does not alone fulfill the study abroad requirement for the major, but may count toward the minor and may be coupled with academic course work through UNH or any study abroad program to fulfill the major study abroad requirement. The faculty contact person is Nancy Lukens, (603) 862-3450.

Hungary

Justice Studies Program in Budapest

The UNH Budapest Program in Justice Studies is designed to introduce students interested in the field to a broader appreciation of the cross-cultural perspective. Each fall, fifteen UNH students spend the semester in residence at the Corvinus University of Budapest in Hungary.

Hungary offers students an opportunity to witness first-hand the evolution of a criminal justice system within a context of significant cultural, political, economic, and social change. Situated along the Danube in one of central Europe's oldest cities, Corvinus offers a unique educational experience to students interested in the study of criminology, law, and society, and the administration of justice. Under the supervision of a UNH faculty member also in residence, students carry a four-course load, two of which are taught by the UNH faculty member. All courses are taught in English.

Eligible students must hold sophomore standing, have completed either SOC 515 or POLT 507, and one other course in the Justice Studies curriculum, and have a minimum cumulative grade point average of 2.5. Participating students will meet several times during the spring semester prior to the study abroad semester to prepare for the program. Interested students should contact the Budapest Program in the Justice Studies Office at (603) 862-1716, or visit www.unh.edu/budapest.

Engineering and Physical Sciences Exchange Program in Budapest

The College of Engineering and Physical Sciences has arranged an opportunity for its students to spend the fall semester of their junior year at the Budapest University of Technology and Economics (BME) in Budapest, Hungary. Courses at BME are taught in English and receive prior approval for degree credit. Students studying at Budapest, therefore, can graduate on schedule at UNH. A general education course on the language, geography, and culture of Hungary, taken at BME, is strongly suggested. The foreign student office at BME will appoint a Hungarian adviser for each student and will assist in obtaining housing either in dormitories, or in apartments. Further information is available from the college's educational assistant and the college's academic counselor, Bobbi Gerry; or the coordinator of student programs, Center for International Education, Hood House; or Andrzej Rucinski, Foreign Exchange Program Coordinator, (603) 862-1381. For more information, visit the program's Web site at www.ceps.unh.edu/academics/budapest.html.

WSBE in Budapest

The Whittemore School of Business and Economics has partnered with the Corvinus University of Budapest (formerly Budapest University of Economics Sciences and Public Administration) to offer students a unique opportunity to live and study in Budapest. This partnership allows WSBE students to take courses at Corvinus in the fall semester that directly transfers into the core of the Business Administration or Economics degrees and into most business options. This ensures that students can study abroad and graduate on time. Moreover, Budapest is developing into a commercial and financial center for many U.S. companies. Its importance for the U.S. economy is growing rapidly.

Students travel to Budapest in the last week of August. A WSBE faculty member meets students in Budapest and sets them up in apartments in the city that are close to the University. The school works to make the transition to life in a foreign culture as simple and easy as possible. Additionally, in the future a WSBE faculty member will be teaching at Corvinus during the study abroad semester. For more information, visit the program's Web site at www.wsbe.unh.edu/study-abroad-budapest.

Italy

UNH-in-Italy in Ascoli Piceno

Students may participate in the UNH-in-Italy Program in the medieval city of Ascoli Piceno, for a semester, a year, or a summer session (see ITAL 685-686).

Academic Year Program. Students live either with Italian families or in apartments in the heart of the city and take UNH courses, taught in English, by UNH faculty. Students with advanced language skills may take courses taught in Italian. Internships are possible. There is no language prerequisite. Students must have a cumulative grade-point average of at least 2.5 and at least sophomore standing. For further information, contact Piero Garofalo, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-3769, www.unhitaly.unh.edu.

Summer Program. UNH-in-Italy offers three different summer options. One is a five-week, 4-credit workshop in painting. The second is a five-week, 8-credit program in Italian studies. The third is a five-week, 8-credit program in Nutrition and Culture. Students live in apartments in the historic center of the city. Field trips to such locations as Venice, Rome, Bologna, Perugia, Urbino, Florence, and Assisi are included. For further information regarding the painting workshop, contact Scott Schnepf, Department of Art and Art History, Paul Creative Arts Center, (603) 862-2190. For further information regarding the Italian Studies program or the Nutrition and Culture program, contact Piero Garofalo, Department of Languages, Literatures, and Cultures, Murkland Hall, (603) 862-3769, www.unhitaly.unh.edu.

Japan

Kansai Gaidai University, Osaka

Students may spend one or two semesters at Kansai Gaidai University in Osaka, Japan. Program participants study the Japanese language, business, politics, literature, fine arts, and other courses. Eligibility requirements include a 3.0 grade-point average and sophomore, junior, or senior standing. Contact the Center for International Education, Hood House, (603) 862-2398 or e-mail study.abroad@unh.edu.

Mexico

Puebla Program

A six-week summer immersion program in Puebla, Mexico open to all students who are interested in taking summer courses at the Universidad de Las Américas. Students must have a cumulative grade point average of 2.5 and a good standing in conduct. Credit for courses completed successfully will be transferred to UNH. For more information, contact Lina Lee, Department of Languages, Literatures and Cultures, Murkland Hall, (603) 862-3123, or go to www.unh.edu/puebla.

The Netherlands

Utrecht University

The Center for International Education administers an exchange program with Utrecht University, open to undergraduate and graduate students in all fields. Utrecht University is one of the top research universities in Europe, with the largest undergraduate population and the largest research budget in the Netherlands. The size, status, and international population of the university ensure that courses in all areas of study are offered in English. This is an especially good exchange for students wanting to combine a study abroad option with work in their majors.

Utrecht University has strengths in the sciences, especially in health care, the biological sciences, and physics. The veterinary program is the only one in Europe accredited in North America. The School of Economics offers programs in international business, marketing, and finance. The School of Law, open to qualified undergraduates, specializes in international law, comparative citizenship and immigration law, and comparative constitutional studies. In the humanities, advanced undergraduates and graduate students at all levels will find especially good opportunities in Atlantic History; linguistics; early modern studies; anthropology; international relations; women's studies; museum studies; art; European cultural studies; studies in race, immigration, ethnicity, and citizenship; justice studies; and American studies. Utrecht University also offers Dutch as a second language, from conversational to intensive and professional, for international students.

Located in an especially lovely section of central Holland, Utrecht is the fourth largest city in the Netherlands. It has a classically old-Dutch city center with seventeenth-century buildings, a medieval church, several high-quality museums and terraced canals that encircle the old city. A university town since the medieval period, Utrecht has long enjoyed a vibrant student culture. Utrecht is easily navigable by foot, bicycle, and bus, and, as the center of the Dutch rail system, enjoys easy access to other cities in the Netherlands and Europe (Amsterdam is 35 minutes away; Paris three hours; London a day trip by plane). Interested students should contact the Center for International Education, Hood House, (603) 862-2398.

New Zealand

UNH-EcoQuest, New Zealand

In partnership with the UNH Department of Natural Resources and the Environment, the EcoQuest Education Foundation offers an intensive program of applied field studies in ecology, resource management, and environmental policy. New Zealand offers an ideal context for multidisciplinary, field-oriented studies, with its rich cultural traditions, diverse ecosystems, expansive natural areas, and history of innovative approaches to resource management. EcoQuest students engage hands-on in New Zealand's restoration ecology and sustainable resource management initiatives. Semester participants have the opportunity to carry out directed research projects while working closely with a faculty mentor and in association with New Zealand research partners. The rural seaside campus is located about an hour's drive southeast of Auckland. Students travel throughout New Zealand's North and South Islands to learn more about the unique ecosystems and local culture.

Students may choose either a four-course, 15-week fall or spring term for 16 credit hours, or a two-course, five-week summer session for eight credit hours. The UNH-EcoQuest Academic program coordinator is Kimberly Babbitt. Contact Donna Dowal, the UNH-EcoQuest director of admissions, (603) 862-2036.

Puerto Rico

Students may spend one or two semesters at one of eight campuses in Puerto Rico through the National Student Exchange (NSE) program. While having the opportunity to learn in a Latin American environment, participants maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. The exchange is open to students from all UNH majors. Since 80 percent of all courses at UPR are taught in Spanish, participants must provide proof of proficiency in Spanish. Students must contact Paula DiNardo, National Student Exchange Office, 106 Hood House, (603) 862-3485 or visit www.unh.edu/nse.

Scotland

Heriot-Watt University Exchange Program

College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. The current program is designed for civil and environmental engineering majors. For more information, contact Ray Cook at (603) 862-1411, or e-mail ray.cook@unh.edu.

Spain

Granada Program

The Granada Program is administered by the Spanish program of the University of New Hampshire. Students may spend one or two semesters in a program designed for those who have completed SPAN 631 or its equivalent, have a B average in Spanish and a cumulative

grade-point average of 2.5, and have at least sophomore status. Courses taught by professors from the University of Granada fulfill requirements for the Spanish major and minor and general education requirements in humanities areas. For further information, contact the Spanish program, Murkland Hall, or visit www.unh.edu/granada.

[^ back to top](#)

Other Programs

Aerospace Studies (AERO) ▼

» [Click to view course offerings](#)

Professor: Michael J. Timmerman

Military Science (MILT) ▼

» [Click to view course offerings](#)

Reserve Officer Training Corps Programs (ROTC) ▼

Students attending the University of New Hampshire may enroll in the Air Force Reserve Officer Training Corps (AFROTC) or in the Army Reserve Officer Training Corps (AROTC) at the University.

The Army ROTC and Air Force ROTC offer programs leading to a commission as a second lieutenant in their respective services. Students in either ROTC program may pursue any University curriculum that leads to a baccalaureate or higher degree.

Two- and four-year programs are available. The four-year program is open to freshmen, sophomores, and transfer students. The two-year program is open to students who have at least two academic years remaining in their college/university degree program. In addition to on-campus course requirements, students must attend an officer-preparatory training session for a part of one summer.

ROTC scholarships are offered on a competitive basis by both the Army ROTC and Air Force ROTC. Entering freshmen may compete for four-year scholarships during their last year of high

school. Additionally, incoming students may compete for scholarships while already in college if they meet specific ROTC requirements. Scholarships may pay up to full tuition, mandatory fees, and required textbooks for college courses. Incoming students with either a four-year or three-year ROTC scholarship may receive a full or partial room and board grant for the entire time they are on an ROTC scholarship. In addition, all scholarship recipients receive a tax-free monthly subsistence allowance. Non-scholarship students in the last two years of the ROTC program also receive the tax-free monthly subsistence allowance.

Both ROTC programs have administrative and medical requirements, which must be met to qualify for a scholarship and a commission.

More specific information about ROTC programs may be obtained by contacting Army ROTC at (603) 862-1078 or Air Force ROTC at (603) 862-1480.

[^ back to top](#)

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About UNH

[General Information](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University

Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

Undergraduate Course Catalog 2009-2010

2009-2010 Online Undergraduate Course Descriptions ▼

Use the **Real Time Course Information** or select the course subject below

Quick-find tip: Select course subject. Type Ctrl-F (PC) or Apple-F (Mac) and enter search term.

Make sure pop-ups are enabled.

For specific course details, please consult the individual course instructor for your section.

Order Alphabetically | **Group by College**

Accounting and Finance (ACFI)

Administration (ADM)

Aerospace Studies (AERO)

Agricultural Mechanization (AM)

American Sign Language (ASL)

American Studies (AMST)

Animal Sciences (ANSC)

Anthropology (ANTH)

Applied Animal Science (AAS)

Applied Business Management (ABM)

Art and Art History (ARTS)

Biochemistry and Molecular Biology (BCHM)

Biology (BIOL)

Business Administration (ADMN)

Chemical Engineering (CHE)

Chemistry (CHEM)

Chinese (CHIN)

Civil Engineering (CIE)

Civil Technology (CT)

Classics (CLAS)

College of Liberal Arts (COLA)

Communication (CMN)

Communication Arts (CA)
Communication Sciences and Disorders (COMM)
Community and Environmental Planning (CEP)
Community Leadership (CSL)
Computer Information Systems (CIS)
Computer Science (CS)
Dairy Management (ANSC)
Decision Sciences (DS)
Earth Sciences (ESCI)
Economics (ECN)
Economics (ECON)
Education (EDUC)
Electrical and Computer Engineering (ECE)
Engineering Technology (ET)
English (ENGL)
Environmental and Resource Economics (EREC)
Environmental Engineering (ENE)
Environmental Horticulture (DBS)
European Cultural Studies (ECS)
Family Studies (FS)
Food Service Management (FSM)
Forest Technology (FORT)
French (FREN)
Genetics Program (GEN)
Geography (GEOG)
German (GERM)
Gerontology (GERO)
Greek (GREK)
Health and Human Services (HHS)
Health Management and Policy (HMP)
History (HIST)
Horticultural Technology (HT)
Hospitality Management (HMG)
Humanities (HUMA)
Information Technology (IT)
Intercollege Courses (INCO)
International Affairs (dual major) (IA)
Italian Studies (ITAL)
Japanese (JPN)

Justice Studies Dual Major (JUST)
Kinesiology (KIN)
Languages, Literatures, and Cultures (LLC)
Latin (LATN)
Life Sciences and Agriculture (LSA)
Linguistics (LING)
Management (MGT)
Marketing (MKTG)
Materials Science (MS)
Mathematics and Statistics (MATH)
Mechanical Engineering (ME)
Medical Laboratory Science (MLS)
Microbiology (MICR)
Military Science (MILT)
Music (MUSI)
Music Education (MUED)
Natural Resources (NR)
Nursing (NURS)
Nutritional Sciences (NUTR)
Occupational Therapy (OT)
Ocean Engineering (OE)
Philosophy (PHIL)
Physics (PHYS)
Plant Biology (PBIO)
Political Science (POLT)
Politics and Society (PS)
Portuguese (PORT)
Psychology (PSYC)
Recreation Management and Policy (RMP)
Religious Studies (RS)
Russian (RUSS)
Sign Language Interpretation (INTR)
Social Science (SCSC)
Social Work (SW)
Sociology (SOC)
Spanish (SPAN)
Technology (TECH)
Theatre and Dance (THDA)
Tourism Planning and Development (TOUR)

TSAS Communication (COM)
TSAS Mathematics (MTH)
TSAS Social Science (SSCI)
UNHM Independent Study (UMIS)
UNHM Special Topics (UMST)
Women's Studies (WS)
Zoology (ZOOL)

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Accounting and Finance

ACFI 620 - Topics in Accounting

Credits: 4.00

Special topics; may be repeated. Prereq: ACFI 621 or ACFI 723 depending on topics and junior standing.

ACFI 621 - Intermediate Financial Accounting I

Credits: 4.00

Examination of the nature and applicability of accounting theory and the conceptual framework of accounting. Development of the capacity to address and resolve issues and problems in financial reporting. Topics include valuation and reporting of current and operating assets, and revenue recognition. Prereq: ACFI 502. Students wishing to repeat ACFI 621 must request and obtain departmental approval.

ACFI 622 - Intermediate Financial Accounting II

Credits: 4.00

Selected topics within financial reporting such as accounting for investments, leases, pensions, and income taxes. Focus on how and why these issues are accounted for in the manner prescribed by current GAAP. Prereq: ACFI 621.

ACFI 640 - Topics in Finance I

Credits: 2.00 to 4.00

Special topics; may be repeated for a maximum of 8 credits. Prereq: ADMN 601 and junior standing.

ACFI 650 - Wildcat Investment Fund

Credits: 2.00

Students actively manage the Wildcat Fund, a donor-created fund which consists of cash and stocks. During weekly meetings, students present their stock selections to the group and debate the merits of the presented stocks. Trades are then made accordingly. An officer corps is responsible for structuring and coordinating the group. Students in good standing may retake course up to a maximum of 4 credits. Prereq: permission.

ACFI 701 - Financial Policy

Credits: 4.00

Development of analytical tools and practical skills for recognizing and solving complex problems of business finance. Working-capital management, capital budgeting, cost of capital, capital structure, and dividend policy. Prereq: ADMN 601.

ACFI 702 - Investments Analysis

Credits: 4.00

Security valuation, efficient markets, portfolio management, options, and alternative investments. Computer research topics. Prereq: ADMN 601.

ACFI 703 - International Financial Management

Credits: 4.00

Financial management problems facing multinational firms. Primary focus on effects of currency denominations on financial decisions. Prereq: ADMN 601.

ACFI 704 - Derivative Securities and Markets

Credits: 4.00

Derivative assets and markets, and their role in business decision-making and portfolio management.

Emphasis on practical and theoretical aspects of hedging and speculating using futures and options for both commodities and financial assets, including their market mechanics. Prereq: ADMN 601.

ACFI 705 - Financial Institutions

Credits: 4.00

Examination of financial institutions and markets. Emphasis on how institutions create value, the regulatory environment under which they operate, and the role of risk management. Prereq: ADMN 601. Writing intensive.

ACFI 720 - Topics in Finance II

Credits: 4.00

Special topics. Prereq: ADMN 601 and senior standing. Writing intensive.

ACFI 723 - Advanced Managerial Accounting Concepts and Applications

Credits: 4.00

Builds on the basic managerial accounting course by continuing the theme of accounting as a management tool. Emphasis is on cost accounting as a source of data for measuring and improving the economic condition of the enterprise. Newly evolving management themes are integrated into the traditional topics of planning and control, cost analysis, overhead allocation, transfer pricing, and decision modeling. Prereq: ADMN 503.

ACFI 724 - Auditing

Credits: 4.00

Philosophy and environment of auditing, with attention to an understanding of the major auditing concepts and objectives and its judgment process. Emphasis on the nature and economic purpose of audits, standards, professional ethics, auditors' legal liability, internal control, and audit evidence. Includes audit procedures, reports, and computer software. Prereq: ACFI 621. Writing intensive.

ACFI 725 - Financial Statement Analysis

Credits: 4.00

Methods and tools of analysis and interpretation of financial statement data. Use of financial information in a variety of decision making situations including a prediction of corporate earnings, debt ratings, and financial distress; lending decisions; risk analysis; and equity valuations. Prereq: ACFI 621 and senior standing. Not offered every year.

ACFI 726 - Introduction to Federal Income Tax

Credits: 4.00

Federal income tax concepts and law applicable to individuals. Coverage includes taxable income and deductions, passive activities, alternative minimum tax, property transactions and compensation. Prereq: ADMN 502.

ACFI 740 - Topics in Accounting II

Credits: 4.00

Special topics. Prereq: ACFI 621 or 723, depending on topics, and senior standing.

ACFI 750 - Internships in Accounting

Credits: 1.00 to 4.00

Accounting fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits. Cr/F.

ACFI 751 - Internships in Finance**Credits:** 1.00 to 4.00

Finance fieldwork in a business or other type of organization. Supervision provided by the organization, and consultation provided by the faculty sponsor. Written report required. Course credits vary according to the nature of the fieldwork, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits. Cr/F.

ACFI 752 - Independent Studies in Accounting**Credits:** 1.00 to 4.00

Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits.

ACFI 753 - Independent Studies in Finance**Credits:** 1.00 to 4.00

Student-designed individual research projects, approved by a faculty sponsor. Paper required. Course credits vary according to the nature of the project, to be determined by the faculty sponsor. Prereq: seniors in high standing; permission. May be repeated up to a maximum of 12 credits.

ACFI 754 - Honors Seminar in Accounting and Finance**Credits:** 4.00

Seminar discussions of advanced readings in accounting and finance. For seniors with standing in the honors program.

Administration-UNHM

ADM 400 - Introduction to Business

Credits: 4.00

Introduces the study of business: examines the origins and development of American business, its place in a global economy, and its legal and ethical roles in modern society. Includes an overview of the functional areas of business such as finance, marketing, and organizational behavior. Designed for business majors as well as for students considering a major in business.

ADM 430 - Introduction to Business Statistics

Credits: 4.00

The use of statistical methods for managerial decision making. Emphasis is on understanding concepts, including inferences from sample data and model formulation, as aids in decision-making. Lab: Using class-focused statistics problems, designed to provide opportunity to develop course-specific problem solving strategies; to adapt from mathematical to statistical thinking; to analyze and communicate significance and meaning of numerical outcomes; to develop course-specific test taking prowess. No credit for students who have received credit for BIOL 528; ADMN 420; EREC 525; HHS 540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.

ADM 532 - Introduction to Financial Accounting

Credits: 4.00

Fundamental concepts of accounting and their impact on the business world and society as a whole. Emphasis on the recording of economic transactions, and preparation and analysis of financial statements. No credit for students who have had ACFI 501, 502, ADMN 502.

ADM 533 - Introduction to Managerial Accounting

Credits: 4.00

Emphasizes how organizational managers use accounting information to support their functions of planning, control, and decision making. Examples taken from corporations, small business, and not-for-profit organizations. No credit for students who have received credit for ACFI 503, ADMN 503. Prereq: ADM 532.

ADM 601 - Financial Management

Credits: 4.00

Study of investment, finance, and dividend decisions of the business firm. Topics include capital budgeting, designing and issuing securities, management of working capital and evaluating manager performance. Prereq: completion of Introductory Business Core or permission.

ADM 610 - Marketing Principles and Applications

Credits: 4.00

Studies the process of planning and distributing goods and services to the marketplace. Topics include product planning, pricing, promotion, and distribution. Emphasis on the application of marketing principles to real world business cases. Prereq: ADM 400, ECN 412.

ADM 620 - Organizational Behavior

Credits: 4.00

Applications of behavioral science concepts to work settings. Topics include worker incentives and perceptions toward work, group versus individual decision making, conflict resolution, interpersonal and leadership skills, and the study of other behaviors relevant to effective managing of a business

organization. Prereq: Completion of Introductory Business Core or permission. Special fee. Writing intensive.

ADM 635 - Students in Free Enterprise

Credits: 1.00

This is a one credit project driven course aimed at teaching students an understanding of free enterprise through the application of economic activities within the community. In addition, students will have special topic sessions on leadership, time management, public speaking, project management, and fundraising. Emphasis on teamwork. Course is open to all students who have junior or senior level standing, in and out of the business program. Prereq: junior or senior level standing.

ADM 650 - Operations Management

Credits: 4.00

Studies the operational issues and problems related to the design and implementation of an organization's production process. Topics include production planning and analysis, inventory and quality control, scheduling, and methods for evaluating production performance in both the goods and service sectors of the economy. Prereq: Completion of Introductory Business Core or permission.

ADM 675 - Special Topics in Business Administration

Credits: 4.00

Provides students with an opportunity to explore a topic in business administration such as marketing, management, finance, or accounting. Topics will vary. Barring duplication of subject, may be repeated for credit. Prereq: Completion of Introductory Business Core or permission.

ADM 685 - Applications in Business Management

Credits: 4.00

Selected topics. Topics will vary. Barring duplication of subject, may be repeated for credit.

ADM 695 - Independent Study in Business

Credits: 1.00 to 4.00

Independent study exploring a special topic emphasizing the managerial, organizational, strategic, political or economic context(s) within which business decisions are made. Prereq: ADM 400 and permission of instructor. May be repeated for a maximum of 8 credits.

ADM 701 - Business, Government and Society

Credits: 4.00

Examines relationships between business and its broader social, political and economic contexts. Topics include business ethics, social responsibilities, the impact of globalization, the impact of government policies, and how business influences government. Prereq: ADM 620 or permission. Writing intensive.

ADM 750 - Business Internship Seminar

Credits: 4.00

A seminar course in which students report on and discuss their business internship experiences. Selected group readings and written and oral student presentations. Prereq: ADM 620 and senior standing or permission. Special fee.

ADM 755 - Co-op Program

Credits: 1.00

This is a program that enables students to integrate classroom learning with practical, professional, experience in their field of study. Students majoring in professional and liberal arts programs experience the working world through an educationally managed agreement between the employer, the student, and the institution. Students need to have a minimum 3.0 cumulative GPA and have junior or senior level

status.

ADM 760 - Applied Senior Project

Credits: 4.00

An independent study research project involving an in-depth exploration into a business topic chosen in consultation with a faculty member. Designed for students with extensive prior work experience. Prereq: ADM 620 and senior standing or permission. Special fee.

ADM 770 - Special Topics Senior Seminar

Credits: 4.00

In-depth exploration into the theoretical and applied aspects of a special business topic. Topics vary according to instructor. Prereq: ADM 620 and senior standing or permission. Special fee.

Aerospace Studies

AERO 301 - Leadership Laboratory

Credits:

Taken by all AFROTC cadets throughout enrollment in AFROTC. Command and staff leadership experiences in cadet corps. Air Force customs and courtesies, drill and ceremonies, career opportunities, and life and work of the junior officer. Student leadership potential developed in a practical, supervised laboratory. Cr/F.

AERO 415 - Foundations of the United States Air Force I

Credits: 1.00

Mission and organization of today's Air Force as an instrument of the U.S. national defense policy. Customs and courtesies, officer-ship, and communication foundations are discussed.

AERO 416 - Foundations of the United States Air Force II

Credits: 1.00

Air Force installations, fundamentals of Air Force written and verbal communication, and current events of interest to Air Force Officers are discussed.

AERO 541 - Evolution of United States Air Force Air and Space Power I

Credits: 1.00

The nature of warfare; development of air power from balloons and dirigibles through World War II.

AERO 542 - Evolution of United States Air Force Air and Space Power II

Credits: 1.00

Development of air power from post-World War II through the peaceful use of air power humanitarian efforts; and research and development of present and future aerospace vehicles.

AERO 671 - Air Force Leadership Studies I

Credits: 4.00

An integrated management course emphasizing the individual as an officer/leader in the Air Force. Motivation and behavior, leadership, communication, group dynamics, and decision making in a changing environment. Air Force cases studied.

AERO 672 - Air Force Leadership Studies II

Credits: 4.00

Organizational and personal values; management of forces in change; organizational power, politics, managerial strategy, quality, and tactics; Air Force cases studied.

AERO 681 - National Security Affairs I

Credits: 4.00

Focus on the armed forces as part of American society, emphasizing civil-military relations in context of U.S. policy formulation and implementation. Requirements for adequate national security forces; political, economic, and social constraints on the national defense structure; impact of technological and international developments on strategic preparedness; the variables involved in the formulation and implementation of national security policy.

AERO 682 - National Security Affairs II

Credits: 4.00

Focus on attitudes toward the military, socialization processes, role of the professional military leader-

manager, and military justice and administrative law.

AERO 695 - Officer Internship (Air Force)

Credits: 4.00

Experiential learning through class and field work in a military environment. Written analysis required.

Prereq: AERO 671 (maybe taken concurrently). Permission of department chair required. For AFROTC cadets only. Cr/F.

Agricultural Mechanization

AM 251 - Welding and Fabrication Technology

Credits: 4.00

Processes and procedures of welding including: Shielded Metal Arc Welding (SMAW), Shielded Metal Arc Cutting (SMAC), Oxyacetylene Welding (OAW), Oxy-Fuel Gas Cutting (OFC-A), Gas Metal Arc Welding (GMAW), Plasma Arc Cutting (PAC), and Gas Tungsten Arc Welding (GTAW). Welding metallurgy and control of distortion. Special fee. Prereq: permission. 2 lec/2-hr rec.

AM 261 - Internal Combustion Engines I

Credits: 4.00

Internal combustion engines (spark-ignited and diesel) and their subsystems with emphasis on their design, how they function, preventive maintenance, and troubleshooting. 2 lec/2-hr rec.

AM 262 - Internal Combustion Engines II

Credits: 4.00

Advanced engine principles and theory. Detailed major failure analysis and overhaul techniques. Prereq: permission, AM261 or EDUC 461. 2 lec/2-hr rec.

AM 270 - Residential Electricity

Credits: 2.00

Electrical principles, laws, and installation with emphasis on the "National Electrical Code." While modeled at the residential level, concepts and terminology will be applicable to the commercial and light industrial sectors as well. Concepts and methodologies will be supported with design and when appropriate, hands on application to enhance the learning environment. 2 lec/2-hr rec. (half semester course.)

AM 275 - Building Science/Residential Construction

Credits: 4.00

The study of inter-relationship of physical principles that affect the functionality and life span of a building. The materials and methodologies of residential construction. 3 lec/2-hr lab. Special fee.

AM 280 - Technical Computer Literacy/Internet Applications

Credits: 4.00

An introduction to the concepts, common hardware components, and operating practices of microcomputers. Emphasis on a networked Windows environment, the Internet, hard disk management, Paint Shop Pro, Microsoft Word, PowerPoint, Excel, and Access. 2 lec/2-hr rec.

AM 291 - Studies in Agricultural Mechanization

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member; credit varies depending on the proposed project/research. Areas may include welding, engines, building construction, electricity, or computers.

AM 292 - Studies in Agricultural Mechanization

Credits: 1.00 to 4.00

See description for AM 291.

American Sign Language

ASL 435 - American Sign Language I

Credits: 4.00

Introduction to American Sign Language with emphasis on visual receptive and expressive use of language, as well as providing opportunities for other forms for visual communication such as facial expression, mime, and gesture. Participants develop their skills through videotapes, classroom participation, and readings that cover issues important to the Deaf community. A weekly, one-hour language laboratory is required as part of this course. Limited to 15 students. Special fee. No credit if credit has been received for COMM 533.

ASL 436 - American Sign Language II

Credits: 4.00

Continuation of ASL 435 and expansion on concepts and principles. Focus on more advanced vocabulary and patterns of grammar; use of space and modulation of signs to denote aspects of time and location; and additional information on Deaf culture. A weekly one-hour language laboratory is required as part of this course. Prereq: ASL 435 or program evaluation. Limited to 15 students. No credit if credit has been received for COMM 733.

ASL 531 - American Sign Language III

Credits: 4.00

Continuation of ASL 436. Expands on groundwork and grammatical principles established in ASL I and II. Introduces the sociolinguistics aspects of ASL as it functions within the deaf cultural context. Limited to 15 students. Prereq: ASL 436 or program evaluation.

ASL 532 - American Sign Language IV

Credits: 4.00

Continuation of ASL 531. Expands on the groundwork and grammatical principles established in ASL I, II, and III. Introduces the sociolinguistic aspects of ASL as it functions within the deaf cultural context. Areas of investigation include use of formal versus informal sign register; sign variation by region, age, and gender; social factors that give rise to code switching; and political and cultural evolution of the U.S. deaf community. Taught in the target language using the direct experience method. Prereq: ASL 531 or program evaluation. Limited to 15 students.

ASL 599 - Special Topics in American Sign Language/Deaf Studies

Credits: 1.00 to 4.00

Selected topics related to American Sign Language and deaf studies that vary by semester. Description available in departmental office during preregistration. May be repeated for credit (maximum of 8 credits) if topics differ.

ASL 621 - Advanced American Sign Language Discourse I

Credits: 4.00

Focuses on the use of ASL discourse in formal as well as informal settings. Students explore the genres of public speaking, artistic expression, formal discussion, interview, and narrative. Development of ASL vocabulary in specialized areas not covered in previous courses. Prereq: ASL 532.

ASL 622 - American Sign Language Discourse II

Credits: 4.00

In this advanced ASL course, students will advance their ASL proficiency by focusing on vocabulary,

syntax, and discourse related to the following topics: 1) biological/medical, 2) financial, 3) technical/mechanical, and 4) cross-cultural comparisons and issues. The cross-cultural topic, in particular, will be a focus throughout the semester. Students work in small assigned groups, on a rotating basis, in which they research and develop speeches on the four topics mentioned above. The class requires both in-class feedback and out-of-class work. Prereq: INTR 438 and ASL 621.

American Studies

AMST 444B - New Orleans: Place, Meaning, and Context

Credits: 4.00

Course uses literature, essays, film, music, debate, and discussion, to explore the topics of place, history, people, politics, art and literature, and music. Lectures, discussion, assignments, and group projects will touch on issues regarding race, poverty, power, social mobility, gender roles, crime, corruption, energy, and the environment. Writing intensive.

AMST #444C - Photographing America

Credits: 4.00

How has the camera shaped the way we see ourselves, and the world around us? How can we "read" a photograph? What kinds of ethical and aesthetic concerns are involved in recording "reality?" What is the relationship between art and social concerns? How do photographs tell stories, and with what consequences? In what ways do photographers borrow literary images, and writers borrow photographic techniques? How does thinking visually change the way we read? How have photographers and writers--sometimes self-consciously and sometimes unwittingly--affected the definitions of what it means to be an American? What does something American look like, anyway? In this class, we'll try to answer these questions in all their complexity by looking at both photographic and written documents, from the late nineteenth century, when photography was a relatively new technology, to the present. Writing intensive

AMST 444D - History Behind Everyday Life

Credits: 4.00

This interdisciplinary course focuses on the history and culture of the United States at the turn into the twentieth century: the period from 1885-1915. Emphasis is as much on the methods of historical studies as on the material itself: we'll approach culture from a variety of different disciplines: history, sociology, literature, art, architecture, music, film. Writing intensive.

AMST 444H - Honors/Inquiry Seminar

Credits: 4.00

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AMST 501 - Introduction to American Studies

Credits: 4.00

An introduction to the basic methods used in the interdisciplinary study of history, literature, arts, and other aspects of the life and culture in the United States, with a special focus on a local New England sub-region: the Piscataqua river, Manchester, Boston, Portland, and the White Mountains, with an emphasis on the multiracial, multilingual, and multiethnic nature of New England culture. Disciplinary approaches drawn from literature, history, environmental studies, folklore, material culture, art history, architecture, film, anthropology, and sociology. May include guest lectures, field work, trips. Required for students minoring in American studies. Writing intensive.

AMST 502 - Introduction to African American Literature and Culture

Credits: 4.00

An introduction to African-American literature in the context of a variety of cultural perspectives. Course topics may include: major writers, literary genres, historical periods, Harlem Renaissance, Black Arts Movement, fine and folk arts, religion, music, and film. (Also offered as ENGL 517.) Writing intensive.

AMST 503 - Introduction to Native American Studies

Credits: 4.00

An introduction to the methods used in the interdisciplinary study of the history, literature, material culture, and other aspects of life and culture among Native American peoples. Specific tribes and nations covered may vary, but concepts emphasized include contact, colonialism, and sovereignty. (Also offered as ENGL 540.)

AMST 603 - Photography and American Culture**Credits: 4.00**

Interdisciplinary study of the relationship between photography and the literature, art, politics, and history of the nineteenth and twentieth centuries. Introduces theories of photography as well as works of individual artists. Topics vary from year to year. Writing intensive.

AMST #604 - Landscape and American Culture**Credits: 4.00**

Interdisciplinary study of the perception, representation, and/or construction of nature. Topics vary from year to year and may include: landscapes in nineteenth-century literature and art, colonial mapping of the Americas (traditions of writing and cartography), Native American traditions of land perception, and the twentieth-century emergence of eco-criticism. Writing intensive.

AMST #605 - Film in American Culture**Credits: 4.00**

Advanced, focused study of American cinema. Topics vary from year to year and with instructor. Focus may range from general consideration of American film history, theory, and criticism, to specific analyses of selected types of American cinema: "classical" Hollywood, "new" Hollywood, and "alternatives" to specific periods, movements, genres, and film-makers. Prereq: ENGL 533, or CMN 550, or permission. Special fee. Writing intensive.

AMST 608 - Women Artists and Writers 1850-Present**Credits: 4.00**

Studies the impact of gender on the lives and works of selected American artists. Considers lesser known figures such as Fannie Fern, Lily Martin Spencer, and Mary Hallock Foote as well as better known artists such as Willa Cather and Georgia O'Keefe. Prereq: permission, or one of the following: WS 401, HIST 566, ENGL 585, 586, 685, 785, or a 600-level art history course. (Also offered as ARTS 608, ENGL 608, HIST 608, and HUMA 608.) Not offered every year. Writing intensive.

AMST 609 - African American Experience in the 20th Century**Credits: 4.00**

Investigates the music, literature, and social history of African American America in the period of the Harlem Renaissance, in the Great Depression, World War II, and in the 1960's. Special attention to the theme of accommodation with and rejection of dominant white culture. (Also offered as ENGL 609, HUMA 609.) Writing intensive.

AMST 610 - New England Culture**Credits: 4.00**

An interdisciplinary course investigating some of the major contributions New England has made to American life. Focuses on periods such as the Puritan era 1620-90), the Transcendentalist period (1830-1860), late nineteenth-century industrialism, and the contemporary era. New England places are also featured, such as Boston, Newport, Salem, the Connecticut River Valley, and rural northern New England. Course materials are drawn from the literature, history, art history, and material culture. (Also listed as ARTS 610, ENGL 610, HIST 610, HUMA 610.) Writing intensive.

AMST #611 - Indigenous New England

Credits: 4.00

An interdisciplinary introduction to the literatures, histories, and cultures of indigenous people located in what is now New England. Course topics may include U.S. American Indian policy, tribal government structures and resistance, history and forms of Native literacy, contemporary sovereignty struggles, popular culture, and film. At least one field trip to a regional Native community required. Special fee. (Also offered as ENGL 740.)

AMST #612 - Periods in American Culture**Credits:** 4.00

Intensive multidisciplinary study of the art, literature, material culture, and the social, political, and cultural movements of a specific period in the American past. Periods vary from year to year. Examples: the 1890's, the 1690's, the 1770's, the 1950's. May be repeated for credit if subject matter is different.

AMST 614 - Native American Studies Topics**Credits:** 4.00

The multidisciplinary study of the histories, cultures, and representations of indigenous peoples. Topics vary and may include Native American/Euro-American interactions under colonialism, the so-called "Era of Assimilation," and contemporary issues of sovereignty. May be repeated for a maximum of 8 credits if the subject matter is different.

AMST 615 - Asian American Studies Topics**Credits:** 4.00

The multidisciplinary study of Asian American literature, culture, theory, and history. Perspectives may be drawn from gender studies, anthropology, cultural studies, film studies, and medicine. Topics vary and may include the study of contemporary fiction and film, representations of gender, of race and cultural pathologies, and of the ethnic body. May be repeated for a maximum of 8 credits if the subject matter is different.

AMST 620 - Internship**Credits:** 1.00 to 8.00

Supervised internship with a governmental agency, private corporation, philanthropic institution, library, archives, museum, historical society, publishing company, or other institution seeking individuals interested in historical research, community development, or careers in education. Repeatable for a maximum of 8 credits. Permission required. Cr/F.

AMST #665 - Applied American Environmental Philosophy**Credits:** 4.00

Applying the philosophical theory underlying environmental studies and approaches to environmental conservation. Students conduct critiques of extensive readings and write papers creatively analyzing aspects of selected philosophical works. Major research manuscript required. (Also offered as NR 665.) Writing intensive.

AMST 696 - Special Topics**Credits:** 4.00

Focused study of an issue, problem, or theme in American Studies. Topics vary. For example: Black Protest in the 1960's, the rise of consumer culture, domestic art, architecture and suburban planning. Barring duplication of subject, course may be repeated for credit. For details see the coordinator. Prereq: AMST 501, and another AMST course, or permission. Writing intensive.

AMST 697 - Seminar in American Studies**Credits:** 4.00

Open to qualified juniors and seniors, with permission of the coordinator and the instructor. Intensive study

of a specialized topic that varies from year to year. Enrollment in the seminar is limited to 15 so that all students can take an active part in the discussion and work closely with the instructor on their papers. Barring duplication of subject, course may be repeated for credit. For details see the coordinator. Prereq: a grade of B or better in AMST 501, completion of at least two other courses in the minor, permission. Not offered every year.

AMST 795 - Independent Study

Credits: 1.00 to 8.00

Open to qualified juniors and seniors. May include fieldwork or an internship at a museum, library, historical society, etc. To be elected only with permission of the coordinator and with qualified supervision. May be repeated up to 8 cr.

AMST XXX - Special message place holder

Credits:

Animal Sciences

ANSC 401 - Animals and Society

Credits: 4.00

The use of animals in agricultural production, for recreation, companionship, and research is considered. The nutrition, genetics, diseases, and reproduction of domestic animals are covered. Special fee. Lab.

ANSC 402 - Horsemanship

Credits: 3.00

For beginning, intermediate, and advanced riders. Basics of balance seat, specializing in basic dressage and combined training. Limited number of students may stable their horses at the University. Special fee. May be repeated for a maximum of 15 credits. Lab. Prereq: permission.

ANSC 403 - Summer Horsemanship

Credits: 1.00

For beginning and intermediate riders. Basics of balance seat, specializing in basic dressage and combined training. There is no lecture with this summer course. Limited number of students may stable their horses at the University. Special fee. May be repeated for a maximum of 18 credits. Prereq: permission.

ANSC 404 - Introductory Equine Science

Credits: 4.00

Study of the horse industry encompassing nutrition, genetics, breeds, selection procedures, and health maintenance. Open to equine science majors only or by permission. Special fee. Lab.

ANSC 405 - Food and Society

Credits: 4.00

Consideration of the cultural significance of food, emphasizing historical, psychological, social, political, and economic aspects.(Also offered as NUTR 405.) Writing intensive.

ANSC 406 - Careers in Animal Science

Credits: 1.00

Survey of various areas of animal and veterinary science and opportunities available. Cr/F.

ANSC 408 - Large Animal Behavior and Handling Techniques

Credits: 2.00

Introduction to domestic large animal behavior and handling techniques. Cattle, horses, swine, and sheep are used in this course. Students perform routine health-related procedures, and gain valuable hands-on skills and techniques which can be applied to the fields of veterinary medicine, animal research, commercial agriculture, and animal control.

ANSC 409 - Introduction to Dairy Herd Management

Credits: 3.00

Economic principles and management factors involved in successful dairy herd management. Criteria for success, record keeping, applied genetics, housing, materials handling, feeding, and health care are topics covered. (Not offered every year.)

Co-requisites: ANSC 410

ANSC 410 - Introduction to Dairy Herd Management Lab

Credits: 1.00

Practical study of various aspects of dairy herd management. Farm visits and case studies will be involved. Should be taken concurrently with ANSC 409. (Not offered every year.)

Co-requisites: ANSC 409

ANSC 411 - Freshman Seminar in Equine Science

Credits: 1.00

Seminar format class. This introductory level class provides students with an overview of the equine industry, its economic impact and pressures and the job opportunities available. Class also includes investigation of the requirements and options within the UNH Equine Program and exploration of the opportunities and resources available for students. Cr/F.

ANSC 415 - Women and Science

Credits: 4.00

The history of women in sciences, beginning with the first women scientists to women scientists in the 21st century. Exploration of a variety of topics in multiple disciplines to acquire a better understanding of the issues, including: culture, society, politics, economics, and gender; as well as race, class, and sexuality; which have affected the advancement of women in science through the centuries. Issues are examined to determine the status of women scientists and what the future holds for women in the sciences. Writing intensive.

ANSC 420 - The Horse in History, Art, and Culture

Credits: 4.00

The horse as a unifying theme and vehicle for the exploration of the history, art and culture of ancient and modern America, Europe, and Asia. Examines the horse's relationship with man throughout history, working in the often-revolutionary effect the horse has had on human development and civilization. Topics to include: changing use of the horse in transportation, warfare and sport; role of the horse in attention to myth, folklore and culture; history of breeds/types of horse in world cultures. Special attention to the depiction of the horse in art as a reflection of the horses use in society and of the developments in artistic style.

ANSC 430 - Dairy Cattle Selection

Credits: 2.00

Principles of selecting dairy cattle based on performance, pedigree analysis, progeny testing, and type evaluation. Lab.

ANSC 432 - Animal Forages

Credits: 3.00

Production and utilization of New England forage crops. Selection of species and varieties; cultural and harvesting practices for top production of excellent quality. Combining uses for greatest efficiency in feeding various livestock classes. Lab.

ANSC 444 - Women and Science

Credits: 4.00

Are men really better than women at science? Were so few scientific achievements attributed to women because so few women participated in science? Were there so few women identified because they produced so little to be significant? Or had women simply not been recognized for their accomplishments in the sciences? This course focuses on the history of women, beginning with the first women scientists to women scientists in the 21st century. In addition this course will explore a variety of topics in multiple disciplines to acquire a better understanding of the issues, including: culture, society, politics, economics, and gender, as well as race, class and sexuality, which have affected the advancement of women in science through the centuries. These issues will be examined to determine where women scientists are at this point in time and what the future holds for women in the sciences. Writing intensive.

ANSC 444A - Animal Ethics: Your Child or Your Pet

Credits: 4.00

Human attitudes toward other animals are generally divided into five categories: animal exploitation, animal use, animal welfare, animal rights, and animal liberation. While all five categories are examined, this course concentrates on the differences between animal welfare and animal rights. These two categories differ fundamentally on the basis of the ethical or moral status they give animals. Past human societies have justified both the worship of animals and the torture and sacrifice of animals to the gods. Animal rights believers rely on a rights-based philosophy, while animal welfare advocates concentrate on a utilitarian based set of values. Course concentrates on the application of these two ethical philosophies to current uses of animals such as the use of animals in research, the use of animals as food (factory farming), the production and use of transgenic animals, and the use of animals as organ donors for humans (xenotransplantation). Since animal rights is, in itself, not a discipline, students depend on information from other disciplines ranging from moral philosophy and ethics to history to genetics, production agriculture, and ethology. Writing intensive.

ANSC 444B - Horse Power: Transforming and Reflecting Civilization

Credits: 4.00

Students explore the enduring bond between the horse and man and the effect of that bond on civilization by considering: How has the horse and man's use of the horse shaped civilization and contributed to societal change? How has the progress of civilization and societal change affected the horse and how its role in society? What does our use of the horse say about us as individuals and as a society? Writing intensive.

ANSC 500 - Methods of Therapeutic Riding

Credits: 4.00

Comprehensive examination of therapeutic riding including types of therapeutic riding and its physical, cognitive, and emotional benefits for clients with a variety of disabilities. Topics include hippotherapy, therapeutic riding, equine-facilitated mental health, youth at risk, therapeutic vaulting, carriage driving, equipment needs/modifications, special considerations for selecting and training the therapy horse, and the role of the volunteer therapist and instructor. Students have the opportunity to work with horses and riders in the UNH Therapeutic Riding Program during labs, as well as view other programs on mandatory field trips. Special fee.

ANSC 504 - Introductory Meats

Credits: 3.00

Selection of meats for quality and economy. Study of wholesale cuts, retail cuts, and grading systems. Pricing of meats as affected by shrinkage and customer demand. Quality control as it affects shelf life of meats. Lab.

ANSC 507 - Scientific Approach to Equine Discipline

Credits: 3.00

Physiological development, control, and education; biting, lunging, driving, and equine gymnastics. Special fee. Lab.

ANSC 511 - Anatomy and Physiology

Credits: 4.00

Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411-412. Special fee. Lab. No credit if credit earned for BMS 507-508; ZOOL 518, ZOOL 625 and ZOOL 626. Not open to freshmen.

ANSC 512 - Anatomy and Physiology

Credits: 4.00

Discussion/comparison of the principles of mammalian form and function. Includes molecular and cellular mechanisms of major processes (such as muscle contraction, neural transmission, and signal transduction) and systematic aspects of the nervous, endocrine, cardiovascular, respiratory, gastrointestinal, and renal systems. Prereq: BIOL 411-412. Special fee. Lab. No credit if credit earned for ZOOL 507-508; ZOOL 518, ZOOL 625 and ZOOL 626. Not open to freshmen.

ANSC 520 - Classical Dressage Experience in Portugal

Credits: 2.00

Concentrated study of the Portuguese method of classical dressage at L'Escola De Equitaco De Alcinca 'N Alcinca, Portugal. Affords students the opportunity to ride at a premiere center for equestrian art with a master of classical dressage and to experience the culture of Portugal. Offers full immersion in dressage riding, teaching, and training. Trip takes place over Spring Break. Weekly seminar held prior to departure. Special fee. Prereq: ANSC 402: Horsemanship at I-2 level or above. Permission required. May be repeated up to a maximum of 6 credits.

ANSC 530 - Dairy Cattle Diseases

Credits: 2.00

Covers the principles of immune response, disease development, immunological basis for disease control, management practices to maintain animal health, and dairy cattle disease identification and prevention.

ANSC 543 - Technical Writing in Animal Sciences

Credits: 2.00

Emphasis on writing scientific articles and articles for the end user on subjects pertaining to the animal science industry. Students are expected to make several oral presentations. Resume preparation is also included. Prereq: ENGL 401 or equivalent; permission. Writing intensive.

ANSC 565 - Principles of Horse Trials Management

Credits: 2.00

Theory and hands-on involvement in the organizational process of managing an eventing competition. Topics will include budgeting, logistical needs, working with entries, sponsorship, awards, publicity, facilities management, course design and committee management. Students will actively participate in the management and preparation of the UNH Horse Trials, overseeing the committees working in the phases of the event and also performing other responsibilities. 1-credit, half semester course. (During the fall semester, the class will meet for the first half of the semester; during the spring semester, the class will meet for the second half of the semester)

ANSC 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Permission of supervising faculty member required. Cr/F.

ANSC 600W - Field Experience

Credits: 1.00 to 4.00

See description for ANSC 600. Cr/F. Writing intensive.

ANSC 602 - Animal Rights and Societal Issues

Credits: 4.00

To explore all aspects of human-animal interaction and welfare, emphasizing social, ethical, biological, historical and economic aspects of animal care and use. (Juniors and seniors only.) Special fee. Writing intensive.

ANSC 607 - Small Animal Diseases

Credits: 2.00

Common diseases in companion animals; emphasis on canine and feline medicine.

ANSC 609 - Principles of Nutrition

Credits: 4.00

Applied animal nutrition and nutrient metabolism. Prereq: one year of chemistry; one semester of physiology.

ANSC 612 - Genetics of Domestic Animals

Credits: 4.00

Application of basic and molecular genetics to the diagnosis and control of inherited diseases of domestic animals and application of quantitative genetics for the improvement of economically important traits of farm animals. Prereq: BIOL 411 or permission.

ANSC 615 - Dairy Farm Internship

Credits: 14.00

An internship on a commercial dairy farm allowing the student day-to-day management of a herd of Holstein cows health and management (animal and financial) are studied. Homework and monthly exams. Dairy Management majors only. Permission required.

ANSC 620 - Equine Diseases

Credits: 4.00

Provides an understanding of the normal versus the abnormal equine including recognition of clinical signs of the abnormal equine., diagnosis and treatment options. Knowledge of when to call a veterinarian and how to administer follow up care. Emphasis on preventative health care. Special fee. (Juniors and seniors only.)

Co-requisites:

ANSC 623 - Comparative Histology

Credits: 4.00

Introduction to microscopic anatomy of domestic animals tissues and body systems with reference to human, avian, fish, and marine mammals. Structure and function briefly correlated. Prereq: BIOL 411-412 and ANSC 511-512 or permission. Recommended for all pre-med, pre-vet, and pre-dental students.

ANSC 640 - Principles of Riding Instruction

Credits: 4.00

Introduction to the principles, theory and practice of Riding Instruction. Includes discussion of styles of learning and instruction as applied to a riding environment, student assessment, skill acquisition, lesson planning, horse selection and principles of group and private riding instruction. Students will use lab time to observe, assist and practice teaching in sections of ANSC 402, which will be matched according to their abilities and interests. Students will prepare for ARIA licensing examinations as part of class. Fall semester only. Lab. Prereq: ANSC 402 at Intermediate 1 or above, or permission.

ANSC 641 - Principles of Dressage Instruction

Credits: 2.00

Advanced principles and theory of dressage and advanced concepts in teaching and coaching dressage. Students will use lab time to observe, assist and practice teaching in dressage-only sections of ANSC 402.

Students will prepare for ARIA licensing examinations as part of class. Spring semester only. Lab. Prereq: ANSC 640.

ANSC 642 - Principles of Jumping Instruction

Credits: 2.00

Advanced principles and theory of jumping and advanced concepts in teaching and coaching over fences in the arena and cross-country. Students will use lab time to observe, assist and practice teaching in dressage-only sections of ANSC 402. Students will prepare for ARIA licensing examinations as part of class. Spring semester only. Lab. Prereq: ANSC 640.

ANSC 643 - Principles of Therapeutic Riding Instruction

Credits: 2.00

Principles and theory of teaching therapeutic riding, including special considerations of teaching in a therapeutic environment and methods of instruction for individuals with a variety of disabilities. Lab consists of observing, assisting and practice-teaching in UNH Therapeutic Riding Program as preparation for NARHA instructor certification process. Spring semester only. Prereq: ANSC 640 and ANSC 500.

ANSC 650 - Dairy Industry Travel Course

Credits: 1.00

Extended field trip to a variety of dairy farms and dairy related businesses in the Northeast with students and faculty from other New England land grants. Includes discussion sessions, case study, problem solving, and journal report. Prereq: permission. May be repeated to a maximum of 2 credits.

ANSC 651 - Biotechnology Experience/Biomanufacturing

Credits: 4.00

Course begins by introducing the student to the proteins and companies of biotechnology and to current good manufacturing practices. Remainder of course students use cell culture of bacteria, mammalian and yeast cells to produce human proteins using the tools and manufacturing standards, operating procedures of biotechnology including upstream and downstream processing of proteins, and quality control of protein production. Prereq: BIOL 411-412; CHEM 403-404. (Also listed as MICR 651.) Permission required.

ANSC 655 - Biotechnology Experience/Research

Credits: 4.00

Biotechnology Research Experience is one of two courses that provides students with state-of-the art tools of biotechnology and an opportunity to master skills and acquire the knowledge needed to effectively work in a biotechnology lab within the industry. Research protocols used in this course illustrate aspects of the "central dogma" of molecular biology. Prereq: BIOL 411, 412, and MICR 503. (Also listed as MICR 655.)

ANSC 694 - Summer Cooperative for Real Education in Agricultural Management

Credits: 4.00

SCREAM (Summer Cooperative for Real Education in Agricultural Management) is a course in which students perform the work and make financial and management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire summer. SCREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture, and the application of science to the management of a dairy herd. Prereq: upper-class standing, permission.

ANSC 695 - Supervised Teaching Experience

Credits: 1.00 to 2.00

Participants are expected to perform such functions as leading discussion sections, directing and assisting in laboratories, and assisting students with their problems in courses that participants have completed

successfully. Enrollment is limited to juniors and seniors who have a minimum 3.00 cumulative average. Prereq: permission of instructor and department chairperson. May be repeated up to a maximum of 4 credits. Cr/F.

ANSC 696 - Supervised Teaching Experience

Credits: 1.00 to 2.00

See description for ANSC 695. Cr/F.

ANSC 697 - Equine Seminar

Credits: 1.00

Current equine industry issues, recent literature and research, and professional preparation. Offered to sophomores and juniors only. Cr/F.

ANSC 698 - Cooperative for Real Education in Agricultural Management (CREAM)

Credits: 4.00

CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial management decisions associated with the CREAM dairy herd. Students assume complete responsibility for the management and care of the 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision-making skills required in production agriculture and the application of science to the management of a dairy herd.

Permission. Two semesters of 4 cr. each are required.

ANSC 701 - Physiology of Reproduction

Credits: 4.00

Comparative aspects of embryology, anatomy, endocrinology, and physiology of reproduction. Special fee. Lab.

ANSC 702 - Endocrinology

Credits: 4.00

Biochemical and molecular structure and function of vertebrate endocrine systems. Influence of endocrine system on the physiology of vertebrates, with special reference to mammals. Current investigations of the endocrine system as a regulator and integrator of body functions including such systems as growth, reproduction, metabolism, differentiation, and behavior. (Also offered as BCHM 702.) Prereq: BCHM 658 or 751;/permission. Special fee.

ANSC 702W - Endocrinology

Credits: 4.00

See description for ANSC 702. Special fee. Writing intensive.

ANSC 704 - Pathologic Basis of Disease

Credits: 4.00

Principles and mechanisms of disease at the cellular and tissue levels, including responses to cell injury, death and adaptation, inflammation, circulatory disturbances, disorders of the immune system, and neoplasia. Prereq: ANSC 511/512 or permission.

ANSC 705 - Veterinary Microbiology and Zoonotic Disease

Credits: 2.00

Clinical microbiological techniques using veterinary medical specimens. Along with the isolation and identification of bacterial, fungal and parasitic pathogens, the zoonotic potential of a variety of organisms is discussed. Prereq: permission of instructor.

ANSC 706 - Human Genetics

Credits: 3.00

The genetic basis of human traits and diseases. New understanding added by molecular genetic approaches. Human genome project, gene therapy. Discussion of genetic components of quantitative and behavioral traits in human evolution. Prereq: BIOL 604 or ANSC 612. (Also offered as GEN 706.) (Not offered every year.)

ANSC 707 - Routine Histological Processing Techniques

Credits: 4.00

Routine histologic techniques including tissue trimming, processing, sectioning, routine and specialized staining, lab safety, and troubleshooting skills are taught through small group discussions, demonstrations, and hands-on training. Prereq: ANSC 511 and 512 or ZOO 507 and 508. Permission required. Special fee.

ANSC 708 - Ruminology

Credits: 2.00

Anatomy of the ruminant gastrointestinal tract, physiological factors related to rumen function, and microbial metabolism of carbohydrates, protein, and lipids. Prereq: MICR 503 or equivalent.

Co-requisites:

ANSC 709 - Special Histological Techniques and Stains

Credits: 4.00

Special histological techniques will be taught as performed in a veterinary diagnostic lab setting. Special techniques that will be covered include: the principles and procedures used to stain the following tissues selectively: carbohydrates, connective tissue, nerve tissue, microorganism, pigments, minerals and cytoplasmic granules. Immuno-histochemistry and enzyme histochemistry technique will also be covered. Laboratory troubleshooting skills and bio-safety protocols will be discussed, including the use of protective equipment and proper handling and disposal of hazardous chemicals. Prereq: ANSC 707. Special fee.

ANSC 710 - Dairy Nutrition

Credits: 4.00

Feeding management of dairy cattle. Emphasis on feedstuffs, nutritional requirements, and diet formulation for efficient production and optimum health. Prereq: ANSC 609 or 750; permission.

Co-requisites:

ANSC 714 - Research Methods in Endocrinology

Credits: 5.00

Principles of biomedical, cellular, and molecular techniques and their applications to research in the endocrine system. Techniques include protein and nucleic acid assays, thin layer chromatography, radioimmunoassay, enzyme-linked immunosorbent assay, agarose and polyacrylamide gel electrophoresis, transfection, restriction analysis, plasmid amplification, RNA extraction, and dot-blot hybridization. Prereq: ANSC 701 or BCHM 658 or ANSC 702/BCHM 702; permission. Special fee. Lab. Writing intensive.

ANSC 715 - Physiology of Lactation

Credits: 4.00

Examines the biological and biochemical influences of the lactation process. Emphasis on the physiological effects of environments, hormones, and nutrition on milk synthesis and secretion, mammary physiology, and maternal response. Prereq: ANSC 701, permission.

ANSC 718 - Mammalian Physiology

Credits: 4.00

Advanced study of the systems that control mammalian functions with emphasis on cellular and molecular mechanisms. Includes the nervous, muscular, cardiovascular, renal, gastrointestinal, and endocrine systems. Prereq: ANSC 511-512; ZOOL 627, and one semester of biochemistry or permission. Writing intensive.

ANSC 724 - Reproductive Management and Artificial Insemination

Credits: 4.00

Focus on goals and fundamentals of reproductive management of horses, dairy and livestock animals, and through actual experience, development of competency in performing modern breeding techniques for equine and bovine reproduction. Prereq: ANSC 701; permission. Special fee. Lab.

ANSC 725 - Equine Sports Medicine

Credits: 4.00

Course focuses on equine anatomy and physiology in relation to athletic performance and injury. Students write an independent paper assessing the use of an equine heart rate monitor on either a UNH or private horse during the semester. (Juniors and seniors only.) Prereq: ANSC 504, 512, 620.

ANSC 727 - Advanced Dairy Management I

Credits: 4.00

Advanced management evaluation of milking procedures, reproduction, genetics, herd health, feeding, housing, and milking systems. Prereq: junior or senior standing; permission.

Co-requisites:

ANSC 728 - Advanced Dairy Management II

Credits: 4.00

Advanced management evaluation of record keeping, financial and business management, personnel management, waste management, and marketing. Prereq: junior or senior standing; permission. Writing intensive.

Co-requisites:

ANSC 750 - Nutritional Biochemistry

Credits: 4.00

Detailed analysis of the digestion, absorption, transport and intermediary metabolism of nutrients. Nutrient requirements are evaluated in the context of their physiological and biochemical functions. Prereq: ANSC 511-512; BCHM 658; or equivalents. (Also offered as NUTR 750.) Fall semester only. Writing intensive.

ANSC 751 - Cell Culture

Credits: 5.00

Principles and technical skills fundamental to the culture of animal and plant cells, tissues, and organs. Introduction to the techniques of sub-culturing, establishing primary cultures, karyotyping, serum testing, cloning, growth curves, cryopreservation, hybridoma formation and monoclonal antibody production, and organ cultures. An interdisciplinary course with emphasis on the application of cell culture to contemporary research in the biological sciences. Prereq: MICR 503; permission. (Also offered as MICR 751 and PBIO 751.) Special fee. Lab.

ANSC 795 - Investigations

Credits: 1.00 to 4.00

Investigations in genetics, nutrition, management, diseases, histology, equestrian management/agribusiness, physiology, cell biology, microbiology, dairy management, or teaching experience. May be repeated up to a maximum of 4 credits. Prereq: permission.

ANSC 795W - Investigations

Credits: 1.00 to 4.00

See description for ANSC 795. Writing intensive.

ANSC 799 - Honors Senior Thesis

Credits: 1.00 to 4.00

Independent research culminating with a written honors thesis in A) Genetics; B) Nutrition; C) Management; D) Diseases; E) Histology; F) Light Horsemanship; G) Physiology; H) Cell Biology; I) Microbiology; J) Dairy Management. May be repeated up to a maximum of 8 credits. Prereq: permission. IA. Writing intensive.

Anthropology

ANTH 411 - Global Perspectives on the Human Condition: An Introduction to Anthropology

Credits: 4.00

By providing a global perspective on the human experience, this course helps us think about the issues that confront students as citizens of the world. Gleaning lessons from cultures past and present this course examines what it means to be human. Whether humans are violent or peace-loving, egalitarian or hierarchical is linked to specific ways of life, rather than reflecting a fixed human nature. The course examines the economic, political, and social forces that shape human behavior and the global forces that people around the world currently confront. From an anthropological perspective it addresses pressing social issues such as sustainable development, hunger and poverty, population growth, religion and changing world views, racism, urbanization, co modification, and movements for social co modification, and movements for social justice

ANTH 411H - Honors/Global Perspectives on the Human Condition: An Introduction to Anthropology

Credits: 4.00

See description for ANTH 411. Writing intensive.

ANTH 411W - Global Perspectives on the Human Condition: An Introduction to Anthropology

Credits: 4.00

See description for ANTH 411. Writing intensive. **Lecture:** 4.00

ANTH 412 - Broken Pots and Buried Cities: Adventures in Archaeology

Credits: 4.00

Traces the history of archaeology's most spectacular finds and how those moments of adventure and glory developed into a scientific discipline. Provides an introduction to the methods used by archaeologists to recover, analyze, and interpret data in their ongoing effort to understand humanity through the analysis of those small things left behind.

ANTH 415 - The Human Story: Evolution, Fossils and DNA

Credits: 4.00

This course uses an evolutionary approach to investigate human biological and bio-cultural variation in time and space. Through a study of the basics of population genetics, an evaluation of our closest living relatives, nonhuman primates, and an exploration of the biological and cultural pathways traversed by our ancestors to become modern Homo sapiens, students learn the depth and complexity of the human story. Laboratory exercises dealing with human genetics, hominin fossils, and evolution are integrated with lectures to give students hands-on learning experience. No credit earned if credit received for ANTH 413

ANTH 450 - Introduction to Race, Culture, and Power

Credits: 4.00

Race, culture, and power intersect at a social space where those in that space experience differing opportunities and access to social and economic privileges, resources, and power. This course explains the way race functions today as a social and cultural category to justify systematic inequality and differences in power and to obscure the functioning of the global economy. The course draws on emerging literature on Blackness, Whiteness, and Minorities and on analyses of the differential implementation of social welfare policies in the United States. (Also listed as INCO 450.)

ANTH 500 - Peoples and Cultures of the World

Credits: 4.00

A) North America; B) South America; C) Middle East and North Africa; D) Sub-Saharan Africa; E) South Asia; F) Southeast Asia; G) Oceania; I) Caribbean; Z) Other. Characteristic ecological, historical, and socio-cultural factors in the major ethnographic regions of the globe. Analysis of selected societies and institutions. Offered in the following sections as staff is available and student needs dictate. North America: Study of the economy, society, religion, art, and ideas of North American Indians from pre-colonial times to the present. South America: A survey of the indigenous cultures and selected studies of the relationship between environment and culture. Changes in culture and social organizations since the 16th century will be considered where historical data permit. Middle East and North Africa: The role of ecological, social, cultural, and historical factors in shaping Middle Eastern and North African culture today. Special attention will be paid to family, values, and religion; to nomadic, village, and urban ways of life; and to issues of unity, diversity, colonialism, and culture change. Sub-Saharan Africa: Study of Sub-Saharan economy, society, and culture from pre-colonial times to the present. South Asia: Emphasis on India, Sri Lanka, and Nepal. Traditional and changing South Asian cultures, including caste, family, economy, and religious traditions of Hinduism and Buddhism. Southeast Asia: Geographical, historical, ethnic, and socio-cultural factors characteristic of the region. Impact of Indian, Chinese, Islamic, and European civilizations. Analysis of selected indigenous social, political, economic, and religious institutions. Oceania: Study of the economy, society, religion, art, and ideology of Pacific Island cultures from pre-colonial times to the present. Caribbean: The history and contemporary situation of diverse cultures of the Caribbean are examined using ethnography, music, and film. The mixture of cultural roots from Africa, Europe, and Asia are investigated and the dynamic and fluid nature of these cultures is stressed. Race as an experience of oppression and resistance is discussed.

ANTH 500W - Peoples and Cultures of the World**Credits:** 4.00

See description for ANTH 500W. Writing intensive.

ANTH 501 - World Prehistory**Credits:** 4.00

A) North America; B) Mesoamerica; C) South America; D) Near East; E) Other. The development of prehistoric culture in various areas of the world. Offered in the following sections as staff is available and student needs dictate. North America: Archaeology of the Indians north of Mexico from earliest evidence of settlement to European contact. Diversity of cultures from ecological and evolutionary perspectives. Emphasis on the Eastern Woodlands, the Plains, and the Southwest. Mesoamerica: Cultural development from earliest cultures through the Spanish conquest. Emphasis on origins of agriculture and rise of Olmec, Teotihuacan, Mayan, Toltec, and Aztec civilizations. Stress on factors critical to the development of complex societies. South America: Cultural development from earliest migrations through Inca Empire. Focus on major regions of South America. Consideration of Intermediate Area, Amazon Basin, and Central Andes as core regions for foundations of civilization. Near East: From earliest cultures to the development of agriculture and settled village life. Examines the processes that gave rise to the world's first civilizations.

ANTH 511 - Core Concepts in Anthropology**Credits:** 4.00

This course introduces students to the core concepts and paradigms of contemporary anthropology. Students will learn how anthropology approaches the study of family, kinship, community, gender, economic relationships, political systems, religion, social change and globalization. Ethnographic material from a variety of cultures will illustrate the concepts of social structure and the cultural construction of categories such as race and ethnicity. Foundation course required of anthropology majors in first year of declaring their major. Writing intensive.

ANTH 514 - Method and Theory in Archaeology

Credits: 4.00

Basic method and theory; techniques in recovering and interpreting data; laboratory exercises in ceramic and lithic analysis. Critical evaluation of archaeological literature. Prereq: ANTH 412 or permission.

ANTH 515 - Anthropology and Contemporary Issues**Credits: 4.00**

Anthropological approaches to current world issues such as racism, poverty, religious movements, revolution, and environmental stress. Selected topics examined in the context of both western and nonwestern societies.

ANTH #516 - Kinship and Social Organization**Credits: 4.00**

The significance of kin and non-kin relations in human societies. Topics include the origins and evolution of human society, variations in the form and functions of marriage, family, and kin-based groups and selected non-kin relationships. Primary focus will be on non-industrial societies. Prereq: ANTH 411 or permission.

ANTH 520 - Anthropology of Migration**Credits: 4.00**

The question of immigration, an issue of great concern throughout the world, is addressed along with the movement of people as a historical, economic, and cultural process. Life experiences of people in motion are examined. Using case studies, past and present migrations are compared. The racial, ethnic, and national identities of migrants are explored. Distinctions between immigrants, refugees, sojourners, internal and international migration, and legal and undocumented migrants, as well as the history and current status of attacks on immigrants are critiqued. While most of the course material is drawn from the U.S. experience, the perspective on migration is global.

ANTH 597 - Special Topics**Credits: 4.00**

Occasional and experimental offerings on an entry level. May be repeated for different topics.

ANTH 601 - Topics in Popular Culture**Credits: 4.00**

This course explores the anthropology of popular culture using film, novels, and other media as well as widely disseminated texts. The course focuses on myths about culture and human behavior which become part of the global cultural mainstream, and counterposes popular stereotypes with data from cultural anthropology and archaeology. A) Native Americans and Popular Culture B) Archaeology and Popular Culture C) Popular Culture and Physical Anthropology D) Poverty and Popular Culture E) Gender and Popular Culture F) Other. May be repeated but not in duplicate areas.

ANTH #610 - Medical Anthropology: Illness and Healing**Credits: 4.00**

How we as humans define sickness and health, our theories of who or what made us ill, our approach to biological processes from birth to death and our search for cures have varied through history and from culture to culture. This course provides an overview of illness and healing beliefs and practices in different cultures both around the world and in the United States. The course examines the practices and belief systems of healers, voodoo priestesses, midwives, Taoist priests, psychiatrists and medical doctors through the same analytical lens. Operates on a seminar format.

ANTH #610W - Medical Anthropology: Illness and Healing**Credits: 4.00**

See description for ANTH 610. Operates on a seminar format. Writing intensive.

ANTH #614 - Economy, Culture, and Society

Credits: 4.00

This course explores the different ways that humans have earned their livelihood, from foraging and agriculture to industrial capitalism. Emphasis is placed on the social and cultural correlates of different economic strategies, with particular attention to the consequences of the spread of capitalism. Consideration is given to issues of equality, gender, sustainability, and the utility and limits of a "globalization" perspective. Prereq: ANTH 411 and ANTH 511, or permission. Operates on a seminar format. Writing intensive.

ANTH 616 - Religion, Culture, and Society

Credits: 4.00

Major anthropological theories of religion; analysis of religious beliefs as symbolic systems and their interrelations with ritual and other social institutions. Detailed study of specific religions. Operates on a seminar format. Writing intensive.

ANTH 618 - Political Anthropology

Credits: 4.00

Political processes and structures in nonindustrial societies. Major topics: centralization of power and authority, legal systems, and warfare. Prereq: ANTH 411 or permission.

ANTH 625 - Sexuality in Cross-Cultural Perspectives

Credits: 4.00

This course examines the ideologies and practices associated with sexuality from a broad perspective that incorporates diverse case studies from the ethnographic record. Working from the argument that much of human sexual behavior is culturally constructed rather than biologically determined, the course invites students to expand their notion of the "normal" and to consider the human condition from a cross-cultural perspective. Topics discussed include cross-cultural varieties of transgendered experience, same-sex sexualities, and heteronormative identities.

ANTH 627 - Urbanization in Africa

Credits: 4.00

Explores the process of urbanization and describes the creation of urban culture in sub-Saharan Africa by investigating the effects of urbanization on socio-economic and cultural conditions. An attempt is made throughout the course to study urbanization and urban life within the context of broader societal, economic, cultural, and political relations in order to understand the dynamics inherent in these processes. Urbanization is discussed in the context of colonialism, post-colonialism, and other social relations of dependency that continue to shape urban life and urban-rural relations.

ANTH 650 - Discovery Guatemala, Archaeology Semester Abroad

Credits: 12.00

Field and laboratory methods in archaeology. Emphasis on excavation techniques and data analysis as related to project research design. Includes practical experience in lab as well as field. Prereq: permission. Special fee.

ANTH #670 - Language and Culture

Credits: 4.00

Investigates the relationship between language and culture and how their interpenetration produces meaning. Special attention to the issues of class, gender, and ethnicity and the ways in which inequality is maintained through culturally patterned speech styles and associated prejudices. Speech communities in the United States are emphasized.

ANTH 680 - Globalization, Development, and Poverty

Credits: 4.00

This course considers the phenomenon of globalization, a term that has come into use since the 1980s to describe the ever-intensifying networks of cross-border human interaction which increasingly tie the world together. Tracing the relationship between the increasing interconnectedness of the world, the processes of economic development and change, and world poverty, the course demonstrates that the consequences of globalization are neither the same nor positive in every country. Through the use of case studies of different development processes, students gain an understanding of why and how globalization is creating differential effects in different parts of the world. This course is the first course of a suggested two course sequence, ANTH 680 and ANTH 780. Writing intensive.

ANTH 685 - Gender, Sexuality and HIV/AIDS in Sub-Saharan Africa**Credits: 4.00**

AIDS is spreading rapidly in sub-Saharan Africa. Course explores the factors that are behind this rapid transmission, including poverty, gender inequality, culture and sexuality. Operates on a seminar format. Writing intensive.

ANTH 690 - Ethnographic Field Research**Credits: 4.00**

Explores history, theory, and practice of ethnographic research. Students read and practice such techniques as mapping, taking life histories, compiling genealogies, and analyzing use of space, language, and rituals. Each student also carries out, writes up, and presents an independent research project. Prereq: ANTH 411 or SOC 400; one 500-level or higher anthropology or sociology course; or permission. No credit for students who have completed ANTH 630. Operates on a seminar format. Writing intensive.

ANTH 697 - Special Topics**Credits: 4.00**

Occasional or experimental offerings. May be repeated for different topics. Prereq: ANTH 411 or permission. Operates on a seminar format. Writing intensive.

ANTH 698 - Folklore and Folklife**Credits: 4.00**

Examines the materials and methods used to study folklore and folklife, emphasizing the historical context and development of folklore studies in North America and Europe, field research, performance theory, and other topics. (Also offered as ENGL 732.) Operates on a seminar format. Writing intensive.

ANTH 699 - Senior Thesis**Credits: 4.00 or 8.00**

Independent work in the library or field; recommended for, but not confined to, majors intending to pursue graduate studies; required for honors candidates. Contact staff to obtain approval and arrange supervision prior to senior year. 4 or 8 credit 2 semesters, 8 credits required for honors; an IA grade (continuous course) given at end of first semester. Writing intensive.

ANTH 699H - Honors Senior Thesis**Credits: 4.00 or 8.00**

See description for ANTH 699.

ANTH 700 - Internship**Credits: 1.00 to 4.00**

Provides student with supervised practical experience in anthropology in one of the following areas: A) professional or community support work within an academic or applied anthropology setting; B) teaching; C) museum work; D) archaeological laboratory or fieldwork; E) research on a faculty research project; F) editorial work on a journal or faculty book project. May be repeated up to 8 credits. Prereq: permission.

ANTH 701 - History of Anthropological Theory

Credits: 4.00

Reading and discussion of the works of major theoreticians of American, British, and French schools. Selections from the works of Spencer, Morgan, Tylor, Boas, Kroeber, Lowie, Steward, White, Durkheim, Mauss, Levi-Strauss, Malinowski, Radcliffe-Brown, Evan-Pritchard, and others are treated in terms of their contributions to the historical development of anthropology and their relevance to contemporary debates in anthropological theory. Prereq: ANTH 511.

ANTH 702 - Issues in Contemporary Anthropological Theory

Credits: 4.00

Explores such recent directions in the discipline as cognitive/symbolic anthropology, cultural materialism, evolutionary theory, gender studies, interpretive anthropology, political economy, practice theory, and structuralism. Prereq: ANTH 701 or permission.

ANTH 705 - Topics in Mesoamerican Anthropology

Credits: 4.00

Examines the very origins of civilization in the New World by first focusing on the domestication of staple food crops and the development of inequality and carefully tracing the ever increasing socio-political complexity displayed by early Mesoamerican peoples. Includes the successive rises of the Olmec, the Zapotec, the Preclassic Maya and Teotihuacan in an effort to understand the mechanisms driving the development of agricultural intensification, economic specialization, long-distance trade networks, and the institution of divine kingship. Operates on a seminar format, open only to juniors and seniors.

ANTH #720 - Roots and Routes: Migration and Globalization

Credits: 4.00

Migrations are changing the nature of national identities, cultures, and concepts of citizenship. Many migrants live their lives across borders, keeping their homeland identities while becoming significant actors in their new lands. At the same time, people who are the descendants of immigrants are exploring their family genealogies and discovering their roots. In this course we ask why migration is a global phenomenon, who is moving, and why. The course compares the new migrations and life experiences of migrants to the migration of the previous few centuries as a way of highlighting the nature of contemporary migration and globalization. We link migration to disparities of wealth and power within and between states. Prereq: sophomore level, ANTH 411 or an introductory-level course in social science or history. Operates on a seminar format, open only to juniors and seniors.

ANTH 770 - Anthropology of the Sinister

Credits: 4.00

Examines narratives of the sinister--stories about witches, demons, vampires, extraterrestrials, and so on--that are told as if true, and the cultural, political, and economic contexts of their production. Variants of the sinister are compared cross-culturally and trans-historically. Links between a recent worldwide upsurge in narratives of the sinister and the processes of globalization and modernity are emphasized. Operates on a seminar format; open only to juniors and seniors. (Also listed as RS 770).

ANTH #780 - Anthropology of Globalization

Credits: 4.00

The central question of the Anthropology of Globalization is the following: "What is happening to the life ways of people and identities around the world as a result of contemporary globalization and why?" To answer this question we begin the course by exploring the global processes behind images of untouched cultures presented through tourism. We explore contemporary co modification of culture. This course develops a definition of globalization by examining the relationship between contemporary and past periods and processes of globalization, reviewing the ways in which cultures and identities were constructed

through processes of globalization. We include in our exploration changing values, social relationships, racial, ethnic, and national identities, gender constructions, and the nature of social protest. Juniors and seniors only. (Students are encouraged to first complete ANTH 680, Globalization, Development, and Poverty.) Operates on a seminar format, open only to juniors and seniors. Writing intensive.

ANTH 795 - Reading and Research

Credits: 1.00 to 8.00

A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.

ANTH 795A - Reading and Research in Cultural and Social Anthropology

Credits: 2.00 to 8.00

ANTH 795C - Reading and Research in Archaeology

Credits: 1.00 to 8.00

ANTH 796 - Reading and Research

Credits: 1.00 to 8.00

A) Cultural/Social Anthropology; B) Anthropological Linguistics; C) Archaeology; D) Physical Anthropology. Prereq: 12 credits of anthropology; permission.

ANTH 796C - Reading and Research in Archaeology

Credits: 2.00 to 8.00

ANTH 797 - Advanced Topics

Credits: 4.00

Advanced or specialized courses presenting material not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Course descriptions on file in the department office during registration. A) Social Organization; B) Economic Anthropology; C) Anthropology of Religion; D) Political Anthropology; E) Social Impact Analysis; F) Cultural Ecology; G) Prehistoric Archaeology; H) Historic Archaeology; I) Cultural Resources Conservation; J) Lithic Analysis; K) Ceramic Analysis; L) Faunal Analysis; M) Human Evolution; N) Human Variations; O) Anthropological Theory. Prereq: ANTH 411 or 412 (as appropriate)/ or permission. Operates on a seminar format, open only to juniors and seniors.

Applied Animal Science

AAS 218 - Formulating Career Paths in Small Animal Care

Credits: 1.00

Students develop, explore, and plan a variable career path in a specific small animal care career obtainable with their applied animal science degree.

AAS 219 - Animal Cruelty: NH Laws, Investigations, and Prosecution

Credits: 1.00

An Internet class delivered through Blackboard Course Management System. Explains and discusses all aspects of animal cruelty, NH cruelty laws, and presents the importance and implications of recognizing animal cruelty and its link to human violence. Cruelty investigation procedures, prosecution protocol and officer field safety will also be presented. Designed as a 14-week class with a "presentation" of one hour per week accessed by the student at their convenience within a specific 3-day time frame during the week. Permission required.

AAS 221 - Large Animal Behavior and Handling Techniques

Credits: 2.00

Introduction to domestic large animal behavior and handling techniques. Cattle, horses, swine, and sheep are used in this course. Students perform routine health-related procedures and gain valuable hands-on skills and techniques which can be applied to the fields of veterinary medicine, animal research, commercial agriculture, and animal control. 1 lec/1 lab.

AAS 222 - Small Animal Grooming I

Credits: 2.00

Introduction to pet grooming. Course covers the techniques and styles of brushing, grooming, clipping, trimming, and bathing common breeds of dogs and cats. Students perform basic grooming in lab period. Special fee for non-TSAS students. May be repeated to a maximum of 4 credits. 1 lec/1 lab.

AAS 223 - Dairy Selection

Credits: 2.00

Selection techniques used in cattle for purchase, breeding, and genetic improvement through the use of visual evaluation, pedigrees, production, and progeny information. 1 lec/1 lab.

AAS 224 - Small Animal Management

Credits: 4.00

Organization, care, facilities design, and general management of small businesses dealing with companion animals and their owners. 3 lec/1 lab.

AAS 226 - Equine Conformation and Lameness

Credits: 4.00

The study of conformation as it relates to soundness and performance. Topics include basic unsoundness related to faulty conformation and type evaluation. Special fee. 2 lec/1 lab.

AAS 227 - Small Animal Diseases

Credits: 2.00

Common diseases in companion animals discussed system by system; emphasis on canine and feline medicine. Prereq: AAS 227, 228, 239, 249. 2 1-hr lec.

AAS 228 - Anatomy and Physiology of Domestic Animals

Credits: 4.00

Structure of the body and functions of the tissues, organs, and systems in the living animal. 3 lec/1 lab.

AAS 230 - Small Animal Breeds and Behavior

Credits: 4.00

Overview of the development, selection, genetics, and function of specific breeds of companion animals. General dog and cat, as well as breed-specific, behavior is included. 2 lec/1 lab.

AAS 231 - Introduction to Animal Science

Credits: 4.00

Survey of the dairy, equine, livestock, and small animal industries; current issues and related occupational opportunities are presented. Included is assistance in gaining or improving the skills needed to be successful in college. Lecture/Lab or Recitation.

AAS 232 - Animal Forages

Credits: 3.00

Production and utilization of New England forage crops. Selection of species and varieties; cultural and harvesting practices for top production of excellent quality feed. Combining uses for greatest efficiency in feeding various livestock classes. 2 lec/1 lab.

AAS 233 - Small Animal Grooming II

Credits: 2.00

Continuation of AAS 222 Small Animal Grooming I. Student is assigned more complex breeds to groom and develops more proficiency in scissoring, hand stripping and clipping. Must have taken AAS 222. Special fee for non-TSAS students. 2 lab.

AAS 234 - Equipment and Facilities Management

Credits: 3.00

Operation of agricultural equipment and maintenance of agricultural facilities as found in New England. Development of the essential skills and technical information needed to manage and supervise agricultural facilities and equipment. 2 lec/1 lab.

AAS 235 - Animal Nutrition

Credits: 3.00

The food nutrients, their digestion and absorption, factors affecting value of feeds, feed additives, and nutrient requirements for maintenance and productive functions. 3 lec.

AAS 236 - Equine Show Preparation and Competition

Credits: 1.00

Course addresses the safe handling and appropriate grooming and clipping of horses as they are prepared for competition. Students will demonstrate horse-handling proficiency while showing their assigned horse in hand. May be repeated to a maximum of 4 credits. Lec/Lab.

AAS 237 - Equine Handling and Care Techniques

Credits: 4.00

Course familiarizes students with different aspects of equine management through a practical and hands-on approach. Topics include selection, fit and care of English tack, bits, grooming, clipping, wound care, safe bandaging techniques, equine behavior, farm layout, basic health care and monitoring, parasite control, and equine transportation. Students will have hands-on experience in the UNH stable. Responsibilities include feeding, cleaning, turnout, and basic care of the University herd. 4 lec/lab or rec.

AAS 239 - Fundamentals of Animal Health

Credits: 3.00

Principles of disease mechanisms: causes, body reactions, and preventive medicine. Prerequisite for other AAS disease courses. Prereq: AAS 228. 2 lec/1 lab.

AAS 240 - Animal Breeding

Credits: 3.00

Principles and practices, including the physiology of reproduction, fertility and sterility, artificial insemination, breeding systems, and selection. 2 lec/1 lab.

AAS 242 - Introduction to Business: Applied Animal Science

Credits: 2.00

Basic course covering business structure, philosophy, and terminology. Foundation for AAS 246, Animal Business Applications. 2 lec.

AAS 244 - Introduction to Dairy Herd Management

Credits: 4.00

The course explores economic, scientific and practical aspects of dairy herd management. The topics covered include history, cattle selection, nutrition, housing, milking, and disease prevention strategies. There are a number of field trips and weekly labs emphasizing management and hands-on experience. (Also offered as ANSC 409/410.)

AAS 246 - Animal Business Applications

Credits: 4.00

Survey of the various elements of managing an animal and/or agricultural operation regardless of commodity. Topics include: financial statements, credit and interest, insurance considerations, labor management, marketing, promotions, advertising, and sales. 4 lec.

AAS 247 - Applied Equine Management

Credits: 3.00

The application of farm and horse management techniques, including stable routine, planning, and design; nutrition; business considerations; and legal responsibilities. 2 lec/1 lab.

AAS 249 - Small Animal Care Techniques

Credits: 2.00

Essential skills and basic background knowledge for the day-to-day care of dogs and cats in a small animal enterprise. 1 lec/1 lab.

AAS 251 - Human/Animal Bond

Credits: 2.00

Explores the many aspects of the human/animal bond through required reading, writing, and discussions. Requires an 8 hour volunteer practicum.

AAS 252 - Equine Health Management

Credits: 4.00

Systems of the horse as they relate to common diseases and lameness. Applied approach to conditioning, care of the sick or lame horse, and preventive care. 2 lec/1 lab.

AAS 253 - Equine Competition Management

Credits: 2.00

Students organize and run a combined test competition to be held in April. The class is responsible for mailing entries, handling publicity and ad sales, compiling the program, setting the course and dressage ring, and dealing with the public. Proceeds fund seminars available to students and class field trips. May be

repeated once. 1 lab.

AAS 254 - Animal Assisted Activities and Therapy

Credits: 2.00

Course explores the human/animal bond in specifically goal directed activities and therapeutic interventions. Covers human/pet volunteer training; animal selection; animal assisted therapeutic applications; and animals in institutions, residential facilities, and classrooms. The text for the class is provided and covered by the special fee of \$25.00.

AAS 263 - Small Animal Grooming III

Credits: 1.00

Individual supervised grooming experience for students who wish to obtain more technical grooming skills. Must have taken AAS 222 twice or AAS 222 and 233. Cr/F.

AAS 264 - Dairy Nutrition Practicum

Credits: 1.00

Practical instruction in feeding dairy cattle, formulating rations and using dairy nutrition software. Major emphasis on ruminant digestion, health and metabolism in the high producing dairy cow. Prereq: Introduction to Dairy Management AAS 244 or permission.

AAS 272 - Comparative Equine Operations

Credits: 1.00

Exploration of regional equine farms and related businesses. Using field trips and journals, students will experience and study different farm and business operations. Prereq: AAS 226. 1 lab. May be repeated to a maximum of 2 credits. Cr/F.

AAS 274 - Dairy Cattle Disease Seminar

Credits: 2.00

Covers principles of the immune response, immunological basis for disease control, and emphasizes management practices to prevent disease and maintain optimal animal health. Numerous guest lecturers, field and case studies, and emphasis on current topics of interest to the industry. (Also offered as ANSC 530.)

AAS 275 - Cooperative for Real Education in Agriculture Management (CREAM)

Credits: 4.00

CREAM (Cooperative for Real Education in Agricultural Management) is a 2-semester course in which students perform the work and make the financial and management decisions associated with the CREAM dairy herd. Assumption of complete responsibility for the management and care of this 25-cow herd for the entire academic year. CREAM provides students with a unique experiential learning model that will help them understand how to work together to manage and operate a small business, the decision making skills required in production agriculture, and the application of science to the management of a dairy herd. Permission. Two semesters of 4 credits each are required.

AAS 276 - Introduction to Laboratory Animal Science

Credits: 2.00

Basic introduction to laboratory animal science for second year small animal care students interested in exploring or working in the field. Includes the husbandry, health, and science of common laboratory animal species and environmental, sanitation, hygiene, and safety topics. Prereq: AAS 228, 230, 239, and 249. 2 lec.

Co-requisites: AAS 277

AAS 277 - Laboratory Animal Science Practicum

Credits: 1.00

Hands-on experience working in the UNH laboratory animal facilities. Coreq/Prereq: AAS 276. May be taken twice. 3 to 4 hours per week.

AAS 278 - Applied Animal Science Computer Applications**Credits:** 1.00

Use of computers in a university setting, developing skills in Microsoft Office, and using the internet. During the second half of the semester, students further develop skills using specific animal science and business-related programs. 1 lec/1 lab/half-term.

AAS 279 - Small Animal Care Practicum**Credits:** 2.00

Provides supervised, hands-on experience at the N.H.S.P.C.A. 4 hours/week. Responsibilities include cleaning, feeding, treatment, grooming, socializing and training of shelter animals. Student must receive or show proof of pre-exposure rabies prophylaxis to take the class. Prereq: AAS 222, AAS 228, AAS 230, AAS 239, AAS 249. Special fee required only for first time the course is taken

AAS 291 - Studies**Credits:** 1.00 to 3.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include dairy, light horses, livestock, poultry, meats, forages, management, small animals, or general animal science. Permission required. Course may be repeated up to a maximum of 6 credits.

AAS 292 - Studies**Credits:** 1.00 to 3.00

See description for AAS 292.

AAS 293 - Equine Field Operations**Credits:** 1.00 to 3.00

Field experience in selected areas of equine care and handling, under supervision of appropriate faculty/staff and outside facilities supervisor. A) Veterinary Clinic; B) Breeding and Foaling; C) areas of student interest. All field operations done on an individual basis. Four or more hours per week. Students must provide their own transportation. Prereq: AAS 225, 226, 247, and/or permission of instructor and adviser.

AAS 297 - Applied Animal Science Work Experience**Credits:**

Employment (12 weeks, generally in the summer following the first year) in an approved animal-related position. Cr/F.

Applied Business Management

ABM 202 - Professional Writing

Credits: 3.00

The major focus is on strategies in writing and speaking as related to day-to-day business operations. Applications relate to employees, suppliers, customers, creditors, public officials, and others. 3-hr lec-discussion.

ABM 204 - Principles of Management

Credits: 4.00

This first-semester course introduces students to the principles and applications of the full spectrum of management. Topics include: marketing and sales, finance, supervision, production/operations, law, social responsibility and ethics, and international business. Students may develop a long-term career plan and/or business plan as a beginning to their career path. 2 1-hr, 1 2-hr lec-discussion.

ABM 205 - Applied Financial Accounting

Credits: 4.00

Learn the basics of sound bookkeeping practices as they apply to any retail, service, or manufacturing entity. Topics include: debiting and crediting, trial balance, worksheets, ledgers and journals, and checkbook reconciliation. Students perform all of the necessary bookkeeping transactions for an actual business. 3-hr lec/2-hr lab.

ABM 206 - Human Resource Management

Credits: 4.00

The biggest problem most managers face is getting their employees motivated to work at peak performance. This course is designed to teach managers how to motivate employees through proper hiring techniques, performance reviews, training, administering change, working with problem employees, working with unions, and administering pay and fringe benefits. 2 2-hr discussion.

ABM 207 - Applied Marketing

Credits: 4.00

Marketing processes presented through text readings, discussions, and semester-long projects. Topics include market research, target marketing, demographics and psychographics, promotion, advertising and publicity, distribution, and pricing. Focuses on the non-personal aspects of marketing and selling.

ABM 208 - Managerial Accounting

Credits: 4.00

Upon successful completion of Applied Financial Accounting (ABM 205), students now focus on the decision-making aspects of financial management, primarily for internal use by managers. Topics include: both short- and long-term considerations in areas such as budgeting, inventory control, capital investments and depreciation, tax strategies, interpretation of financial statements, profitability analysis, cash flow management, standard cost accounting, manufacturing accounting, and other cost accounting techniques. 3-hr lec. 2-hr lab.

ABM 210 - Operations Management

Credits: 4.00

This business elective for second year students focuses on the location and layout of service, retail and manufacturing enterprises with an emphasis on efficiency, safety, cost control and customer satisfaction/profit maximization. Lecture.

ABM 211 - Business Policy

Credits: 4.00

Through use of case studies from existing businesses, the organization and execution of a student-run business, students now bring together and apply all they have learned throughout the program. This course also features an Executive Speaker Series and a community service component. This unique and experiential final-semester course allows the individual to see how all of the parts make up the whole and to achieve a higher level of self-confidence, self-esteem, and hands-on abilities. 2 2-hr lec-discussion.

ABM 212 - Business and Industry Internship

Credits: 1.00 to 4.00

Students work and/or complete research projects with business and industry partners under the supervision of faculty; an excellent experiential opportunity. The specific content of each internship will vary tremendously and is unique to each project. Sample focus areas include, but are not limited to, marketing and sales, financial management, personnel management, international trade and operations. Course may be repeated up to a maximum of 8 credits. Cr/F.

ABM 214 - Applied Sales

Credits: 4.00

Focuses on the process of personal selling and persuasion skills. Students spend considerable time practicing their techniques and working with (and observing) professional sales associates in the workplace. Selling involves the pre-approach, approach, demonstration, handling of objections, and closing the sales and follow-up. Also presents and discusses the roles of the sales manager and related financial elements. 2 2-hr lec-discussion.

ABM 215 - Business and the Community

Credits: 4.00

Successful business people must understand the relationship between business and community. The course will explore the role of business and entrepreneurs within the community and the role of the community in developing a successful business environment. An overview of the regulatory environment will be investigated; such as zoning regulations and other constraints on private decisions. This will be accomplished through lectures, guest lecturers, site visits and a group project. The group project will be a substantial part of the course. This will enable students to apply the principles as well as to experience working in a team environment. 2 2-hr lec.

ABM #217 - Web Page Programming and Design

Credits: 4.00

Course focuses on creating and maintaining sites on the world wide web. Topics include designing, programming, and promoting individual web sites, and HTML coding. 2 2-hr lec.

ABM 221 - Seminar in Marketing and Sales

Credits: 1.00

Marketing and sales techniques for the small business manager, salesperson, or entry-level marketing department employee. Topics include market segmentation; product pricing and differentiation; prospecting, approaching, presenting, and closing of a sale. No credit for students taking ABM 214 or FSM 240. 1st quarter module.

ABM 223 - Seminar in Human Resource Management

Credits: 1.00

Human resource management for small business managers and middle managers in larger firms. Topics include motivation, recruiting, training, and conflict management. No credit for students taking ABM 206. 3rd quarter module.

ABM 224 - Seminar in Financial Management

Credits: 1.00

Financial statement preparation and analysis for merchandising and service firms. Tailored to small-business managers and middle managers of larger businesses. No credit for students taking ABM 205. 4th quarter module.

ABM 225 - Senior Project

Credits: 4.00

Independent study project and research paper relating to a specific management problem. Topic selected by student and adviser. Student must complete 15 weeks of work experience either prior to or during the senior project.

ABM 226 - Business Computer Applications

Credits: 4.00

Trains students to use common software as an effective tool to answer business questions and solve complicated problems. Microsoft Office programs including Excel, Access, and Powerpoint are used. Microsoft Office is the standard for almost all business operations and will be helpful in other TSAS courses like Managerial Accounting and Business Policy. Each student creates more than twenty business related spreadsheets, creates and manages multiple databases, and creates several presentations.

ABM 232 - Business Law

Credits: 4.00

Background and understanding of the legal aspects of management, including: contracts, liability and insurance, business law and regulation, employee laws and rights, forms of ownership, tax implications, and other legal matters relevant to successful management.

ABM 242 - International Trade Applications

Credits: 4.00

Through textbook readings and classroom discussions, students will learn about the 3 major aspects of foreign trade - the "Market Connection" which revolves around locating, qualifying, and establishing relationships with overseas customers; the "Financial Plan" which ensures that adequate financing is available for start-up, production, and working capital needs; and the "Distribution Process" which involves packaging, customs requirements, shipping, storing and delivery to final destination. Students will establish contacts with individuals and agencies involved in foreign trade, and will develop an "Export Plan" for their selected product(s) or service(s). The traditional classroom/textbook course is enhanced through an intensive field research/industry focused semester project. Prereq: permission of instructor. 2 lec. May repeat once for credit.

ABM 291 - Studies

Credits: 1.00 to 4.00

Students who have exhibited the ability and willingness to work independently may design and contract a research project on a topic not available through existing course offerings. Each project is facilitated by faculty/staff member. Credit varies from one to four, depending on depth and breadth of the project. Areas may include, but are not limited to: retail, service or manufacturing, international trade, real estate, hospitality, health and fitness, computer technology, commerce, finance, or philanthropy.

ABM 292 - Studies

Credits: 1.00 to 4.00

See description for ABM 291.

Arts/History & Studio

ARTS 444 - Mona Lisa to Romeo and Juliet: An Introduction to Renaissance Culture

Credits: 4.00

What made Renaissance culture tick: who were the pivotal personalities (writers and politicians as well as artists); which are the most typical and which the least typical works produced in Italy and elsewhere throughout Europe? How did viewers think about the art of their time, and in particular how did they respond to the new mass medium of printed images? How connected is our present artistic culture to that of five hundred years ago? When did the Renaissance acquire its fame? Students consider connections between the English and the Italian Renaissances, comparing, for instance, Michelangelo and Shakespeare. Readings include sixteenth-century historical and literary sources as well as art historical essays. Writing intensive.

ARTS 444A - Futurism and The Arts

Credits: 4.00

This seminar explores the impact of technology, industrialization, and socialism on ideas about the creation of utopias and dystopias in the twentieth century. Focuses on specific movements in art, architecture, photography, film, and science fiction--such as Expressionism, Cubism, Futurism, and the New Urbanism--that demonstrate either a rejection of the past in order to build a new future, or the dissolution of the future into chaos. Writing intensive.

ARTS 455 - Introduction to Architecture

Credits: 4.00

Study of architectural graphics, design theories, form determinants, and the architect in society. Includes case study projects. Lab.

ARTS 480 - Introduction to Art History

Credits: 4.00

Analysis of the central forms and meanings of art history through intensive study of selected artists and monuments. Includes works of architecture, sculpture, painting, and the graphic arts. Topics will vary but might include the Parthenon, Chartres Cathedral, Michelangelo's Sistine Chapel ceiling, Rembrandt's self-portraits, Monet's landscapes, Picasso's Guernica, Frank Lloyd Wright's Falling water, Georgia O'Keeffe's abstractions, ukiyo-e prints, and Benin sculpture. Writing intensive.

ARTS 487 - Themes and Images in Art

Credits: 4.00

Examination of one or two central ideas embodied in the imagery of painting, sculpture, architecture, and other arts across a wide cultural spectrum. Stress on the interconnection between visual forms and the symbolic and philosophical concepts they express. Papers and essay examinations are required. A) Classicism and its Discontents; B) Nature and Culture in Art; C) Primitivism and Modern Art; D) Major Mythic Images of Women; E) Symbols of Innocence and Experience in the New World; F) Abstraction and Ideology; H) Portrait, Self, and Society. J) Themes and Images: 20th Century Europe. Special fee for section J only. (Section J also listed as ECS 400.) Descriptions of sections available in the Art and Art History Department Office. No more than one section of the course may be taken for credit. Writing intensive.

ARTS 487H - Honors/Themes and Images in Art

Credits: 4.00

See description for ARTS 487. Writing intensive.

ARTS 501 - Ceramics

Credits: 4.00

Theory and practice of basic ceramics; includes all methods of basic construction, decoration, glazing, and kiln firing. Emphasis on each individual's perceptual development. Special fee. Lab.

ARTS 525 - Woodworking

Credits: 4.00

Theory and application of basic woodworking principles; design concepts, primarily utilitarian, applied to shaping a mass, constructing volumetric and line/plane forms; use of a complete range of hand, portable powered, and stationary powered tools. Special fee. Lab.

ARTS 532 - Introductory Drawing

Credits: 4.00

Students deal primarily with observational perspective problems (still life, architectural interiors, landscape, etc.), utilizing a full range of drawing materials. Lab.

ARTS 532H - Honors/Introductory Drawing

Credits: 4.00

See description for ARTS 532.

ARTS 536 - Introduction to Printmaking: Intaglio

Credits: 4.00

Study of intaglio printmaking techniques, including etching, dry point, and engraving. Prereq: ARTS 532 or permission. Special fee. Lab.

ARTS 537 - Introduction to Printmaking: Lithography

Credits: 4.00

Study of lithographic processes on stone and aluminum plate. Prereq: ARTS 532 or permission. Special fee. Lab.

ARTS 544 - Water Media I

Credits: 4.00

Transparent and opaque water color. Prereq: ARTS 546. Lab.

ARTS 546 - Introductory Painting

Credits: 4.00

Use of the still life and the figure. Color, value, composition, and some art history. Slide lectures. Prereq: ARTS 532. Lab.

ARTS 551 - Photography

Credits: 4.00

Introduction to theory and practice of black and white photography as an expressive medium. Students provide their own cameras. Prereq: any studio art course or permission. Lab. Special fee.

ARTS 552 - Digital Photography

Credits: 4.00

Students are introduced to the basic principles and applications of digital photography as a medium, and a skill-set. Students work in color becoming acquainted with the concepts of camera hardware, computer hardware and software related to digital image acquisition, manipulation, and output, including scanning, masking, layering, retouching, and archival printing. Students are required to have a digital camera (point and shoot or DSLR). Special fee.

ARTS 567 - Introductory Sculpture

Credits: 4.00

Theory and practice of designing three-dimensional compositions using a series of progressive assignments to develop a practical understanding of visual elements, including line, form, space, mass, and plane. Special fee. Lab.

ARTS 570 - Art of the Ancient World

Credits: 4.00

Architecture, sculpture, and painting in the ancient Mediterranean world. Following an analysis of Paleolithic cave painting, the course surveys the beginnings of Western art and civilization in Egypt, Mesopotamia, and Minoan Crete. Detailed examination of archaic and classical forms and ideas in Greek art; the course ends with the transformation and decline of classical ideas in imperial Rome.

ARTS 571 - Art of the Middle Ages

Credits: 4.00

Architecture, sculpture, and painting in medieval Europe. Beginning with Early Christian art, the course examines the interplay between classical traditions and the more abstract forms and ideas that emerged at the end of the Roman Empire and then flourished in Byzantine and early medieval art. Special attention to the development of the Romanesque and Gothic forms and meanings in the high medieval civilization of the 12th and 13th centuries.

ARTS 572 - Art of the Age of Humanism

Credits: 4.00

European painting, sculpture, and architecture from the 15th to the 17th centuries. The course focuses on the revolutionary character of early Renaissance art in Italy and the Netherlands and the heroic age of High Renaissance classicism that followed around 1500. Examines the subsequent crisis of 16th-century Mannerism and realism, and the ruptures and continuities underlying the diverse forms and meanings of Baroque art in the following century.

ARTS 573 - Art of the Modern World

Credits: 4.00

Painting, sculpture, and architecture in Europe and America from the French Revolution to the present. Surveys the rapidly changing currents and countercurrents in modern art, including Neo-classicism and Romanticism, Realism and Impressionism, the Cubist revolution, and various forms of 20th century abstraction. In addition to the individual artists and movements, discussion of the cultural upheavals that have driven modernism's pervasive sense of crisis and pursuit of the "new."

ARTS 574 - Architectural History

Credits: 4.00

A survey of the chief and representative buildings from the entire history of architecture. Analysis of buildings with regard to structure, form, and symbolic content, concentrating on major works such as the pyramids, the Roman Pantheon, the Gothic cathedral, the Renaissance palace, the Baroque church, and the modern skyscraper. Writing intensive.

ARTS 580 - History of Art to 1400

Credits: 4.00

A chronologically and geographically broad introduction to the history of art and architecture and to the discipline of art history. The first semester of the two-semester sequence ranges from the Ancient World to the Renaissance. Writing intensive.

ARTS 581 - History of Art from 1400 to the Present

Credits: 4.00

A chronologically and geographically broad introduction to the history of art and architecture and to the discipline of art history. The second semester of the two-semester sequence ranges from the Renaissance to the present. ARTS 580 is recommended as preparation for, but is not a formal prerequisite for 581. Writing intensive.

ARTS 585 - History of Islamic Art

Credits: 4.00

This course examines the main monuments and issues in the history of Islamic art. It is intended as a general introduction to the field and no prior knowledge is required. Although the course focuses on the period between the rise of Islam and the Mongol invasions, students will be encouraged to explore later periods of Islamic art in their papers. Particular attention will be paid to patronage, form, and legislation of pilgrimage sites, and other forms of sacred architecture. (Also offered as HIST 600.)

ARTS 598 - Sophomore Seminar

Credits: 4.00

Encourages experimentation by integrating verbal and plastic understandings through readings, discussions, studio work. Field trips. Prereq: two art history courses and two studio arts courses.

ARTS 600 - Internship

Credits: 1.00 to 4.00

Election to take an internship in the following areas within the Department of Art and Art History: (600A) Painting, Drawing, Printmaking, Photography, Sculpture, Woodworking, Ceramics, and Graphic Design; (600B) Art History; (600C) Architecture; and (600D) Museum Work. Cannot be used to satisfy one of three electives in the Studio B.F.A. Program and one of the two electives in the Studio B.A. Program. In art history, it can be taken as an elective above the 11-course major requirement. May be repeated up to 8 credits. Prereq: permission.

ARTS 601 - Ceramics Workshop

Credits: 4.00

Application of new ceramic materials and techniques, with emphasis on ideas and their expression through form and content. Experimentation encouraged. May be repeated for a maximum of 12 credits. Prereq: ARTS 501. Special fee. Lab.

ARTS 608 - Arts and American Society: Women Writers and Artists, 1850-Present

Credits: 4.00

Team-taught course studying the impact of gender definitions on the lives and works of selected American artists. Considers lesser-known figures such as Fannie Fern, Lilly Martin Spencer, and Mary Hallock Foote, as well as better-known artists such as Willa Cather and Georgia O'Keeffe. Prereq: permission or one of the following: WS 401, HIST 566, ENGL 585, 586, 685, 785, or a 600-level art history course. (Also offered as AMST 608, ENGL 608, HIST 608, and HUMA 608.) Studio art majors who take this course for major credit will not receive major credit for ARTS 610. Writing intensive.

ARTS 625 - Wood/Furniture Design Workshop

Credits: 4.00

Design and construction of the major furniture forms, using a broad range of techniques (including lamination, bending, and molding) to execute a series of concept areas relevant to furniture. May be repeated for a maximum of 12 credits. Prereq: ARTS 525. Special fee. Lab.

ARTS 632 - Intermediate Drawing

Credits: 4.00

Focuses on three major topics: 1) linear perspective, 2) anatomical and/or structural aspects of the human figure, and 3) special materials (painterly and/or mixed media). Outside assignments encourage original

thinking about image making. Prereq: ARTS 532. Lab.

ARTS 633 - Life Drawing

Credits: 4.00

A continuation of the more formal aesthetic issues introduced in introductory and intermediate drawing with an emphasis on drawing the human figure from life. Prereq: ARTS 632. Lab.

ARTS 636 - Printmaking Workshop

Credits: 4.00

Emphasis on development of the individual's imagery in lithography and/or intaglio, including an introduction to multicolor printmaking. May be repeated for a maximum of 12 credits. Prereq: ARTS 536 and/or ARTS 537. Lab.

ARTS 645 - Water Media II

Credits: 4.00

Continuation of ARTS 544; introduction to other water-based media. Prereq: ARTS 544. Lab.

ARTS 646 - Intermediate Painting

Credits: 4.00

More complex issues of the visual language. Still life and the figure continue as dominant subject matter. Slide lectures. May be repeated for a maximum of 8 credits. Prereq: ARTS 546. Lab.

ARTS 651 - Photography Workshop

Credits: 4.00

Individualized projects involving creative methods, including color, manipulative, and documentary techniques. Students provide their own cameras. Prereq: ARTS 551. May be repeated for a maximum of 12 credits. Lab. Special fee.

ARTS 654 - 17th and 18th Century American Architecture

Credits: 4.00

Chief architectural styles and significant buildings from the European colonization to the birth of the American republic. A study of religious, public, and domestic architecture and of the settlement patterns of the Spanish, French, Dutch, and English colonies, culminating in the revolutionary classicism of the new republic. Typical works include the California mission church, the New Orleans raised cottage, the Dutch farm house of the Hudson Valley, the plantations of Virginia, and the Boston State House. Field trips. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 655 - Early Modern Architecture: Revolution to World War I

Credits: 4.00

Chief architectural styles and significant buildings in Europe and America from the visionary Neoclassicists of the late eighteenth century and the revival styles of the Victorian era to the birth and proliferation of the skyscraper. A study of the religious, public, commercial, and domestic architecture and of town planning during the rise of the modern nation-state and market capitalism. Typical works include the University of Virginia campus, the Houses of Parliament, the Eiffel Tower, the Chicago skyscraper, and Prairie House of Frank Lloyd Wright. Field trips. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 656 - Contemporary Architecture: The Buildings of Our Times

Credits: 4.00

Chief architectural styles and significant buildings in Europe and America from the International Style and Frank Lloyd Wright to the rise of postmodernism. A study of 20th century religious, public, commercial, and domestic architecture and of town planning that emphasizes the important formal, technological, and theoretical developments of high modernism and its aftermath. Typical works include the Bauhaus, Wright's

Fallingwater, Le Corbusier's visionary town plans, the Air Force Academy, and Frank Gehry's Guggenheim Museum in Bilbao. Field trips. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 667 - Sculpture Workshop

Credits: 4.00

Design and production of sculpture focusing on various materials and techniques and how they relate to composition and content. Emphasis on understanding visual language while developing an individual style. May be repeated for a maximum of 12 credits. Prereq: ARTS 567. Special fee. Lab.

ARTS #673 - Egypt and Nubia: Art, Architecture, and Rediscovery

Credits: 4.00

An examination of the art and architecture of Egypt and Nubia from the ancient, Christian, and Islamic periods to the modern era. Specific topics include: Egyptian religion and the major funerary complexes of the pharaohs; art and culture in Nubia; Egypt under the Ptolemies and the Romans, Christian monastic reform and the Copts; the spread of Islam under the Fatimids and Mamluks; travelers and archaeologists in the nineteenth century. Through field trips, the course will take advantage of the extensive collection of Egyptian art at the Museum of Fine Arts in Boston, as well as the collections of Coptic and Islamic art at the Harvard University Art Museums in Cambridge, Mass. Writing intensive.

ARTS 674 - Greek Art

Credits: 4.00

Greek art and architecture from the Bronze Age civilizations of Minoan Crete and Mycenaean Greece to the late classical period of the 4th century B.C. Emphasis on the interplay of narrative and abstraction in the development of a distinctively Greek aesthetic consciousness, on the forms of art and thought in the Archaic Period, and on the flowering of the classical style in the 5th century B.C. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 675 - Roman Art

Credits: 4.00

Art and architecture in the ancient Mediterranean world from Alexander the Great to the fall of the Roman Empire. Emphasis on the interplay between the Greek and Etruscan traditions between public and private in Roman life and art, and the breakdown of classical ideals in the late empire. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS #676 - History of Illuminated Manuscripts

Credits: 4.00

During the Middle Ages manuscripts were the primary locus of the painting tradition. After a consideration of the development of the manuscript book and our method of study, this course will consider the major works of manuscript illumination and their painted cycles of miniatures. Such important works as the Book of Kells, the Winchester Bible, the Psalter of St. Louis, and the Tres Riches Heures of Jean de Berry are considered in their cultural and historical contexts. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 677 - Early Medieval Art

Credits: 4.00

Development of Christian art from 300 to 1000 A.D. Study of the formulation of a new visual language via the intersection of Mediterranean and northern European traditions. Major focus on early Christian catacombs, Byzantine mosaics, insular manuscripts, and Carolingian imperial art. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 678 - Romanesque and Gothic Art

Credits: 4.00

The culmination of medieval artistic development through examination of major architectural monuments and their sculptural programs, as well as important centers of manuscript illumination. The period from the year 1000 A.D. through the beginnings of the Renaissance in the early 15th century will be stressed.

Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 679 - Northern Renaissance Art I

Credits: 4.00

Painting, sculpture, graphic arts, and manuscript illumination in France, Germany, and the Netherlands in the 14th and 15th centuries. Emphasis on the development of the traditions of Northern naturalism and the emergence in 15th-century Flanders of a distinct Renaissance consciousness, which runs parallel to contemporary trends in Italy. Major figures include the Limbourg brothers, Claus Sluter, Jan van Eyck, and Hugo van der Goes. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 680 - Northern Renaissance Art II

Credits: 4.00

Painting, sculpture, and graphic arts in Germany and the Netherlands in the 16th century. Emphasis on the encounter of the Northern tradition with the classical and humanistic culture of the Italian Renaissance and on the impact of the Protestant Reformation. Major figures include Bosch, Durer, Holbein, and Bruegel.

Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 681 - Early Renaissance Art in Italy

Credits: 4.00

Painting, sculpture, and architecture in Italy during the 14th and 15th centuries. The emergence of Renaissance style in the art of such masters as Giotto, Masaccio, Donatello, Bellini, and Piero della Francesca. Attention is also given to the broad cultural developments to which they belong. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS #682 - High Renaissance and Mannerist Art in Italy

Credits: 4.00

Continuation of ARTS 681. Primary focus on the formation of High Renaissance classicism in the art of Leonardo, Michelangelo, Raphael, Bramante, and Titian. Attention is also given to the subsequent crisis of the classical ideal in 16th-century mannerism. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS #683 - Baroque Art in Southern Europe

Credits: 4.00

Painting, sculpture, and architecture in Italy, France, and Spain during the 17th century. Emphasis on the diverse and innovative character of art in this period of crisis between the Renaissance and the modern era. Intensive analysis of the works of such major masters as Bernini, Caravaggio, Poussin, and Velazquez. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 684 - Baroque Art in Northern Europe

Credits: 4.00

Dutch and Flemish painting in the 17th century. Examination of such major figures as Rubens, Rembrandt, Van Dyck, and Vermeer. Attention is also given to the development of the genres and to the many little masters who practiced them. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 685 - Graphic Art of the Renaissance and Baroque Periods

Credits: 4.00

The availability of paper and the invention of the printing press made it possible for drawings and prints to become fundamental elements in the western artistic tradition. Prints have been called major instigators of the production of secular art and of overtly experimental art. They were the first art made with an elite but

relatively broad class of collectors in mind, and--in different examples--the first art that could be owned even by the poor. Examination of anonymous works, works by artists famous only as printmakers, and the printed work by or after Mantegna, Durer, Lucas van Leyden, Raphael, Michaelangelo, Bruegel, and Rembrandt, as well as drawings of the period. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS #686 - Neo-Classicism to Romanticism

Credits: 4.00

European painting and sculpture in its socio-political context, with emphasis on the relation of idea to image, from David and the French Revolution to the romantic landscapes of Friedrich and Runge, and the romantic-classic debate involving Delacroix and Ingres. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 687 - Realism and Impressionism

Credits: 4.00

Focus on the political, cultural, and physical changes in Paris in the second half of the 19th century and their relation to Impressionism. Work of Courbet, Millet, Monet, Manet, Degas, Cassatt, Morisot, Renior, Cezanne, van Gogh, Seurat, and others examined in the context of the rise of landscape painting and the establishment of the avant-garde in the visual arts. Concentration on the great collections of the Harvard University Art Museums and the Boston Museum Fine Arts. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 688 - 20th Century Art I

Credits: 4.00

An examination of European and American art from symbolism to surrealism. Focuses on art and theory from the 1890s to World War II in relation to the political, social, and scientific upheavals of the era. Particular emphasis will be placed on Gauguin in the South Seas, Rodin and modernist sculpture, Matisse and expressionism, Picasso and cubism, Kandinsky and the Russian constructivists, Hoch and dada photomontage, O'Keefe and American modernism, and Dali and Freud. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 689 - 20th Century Art II

Credits: 4.00

Examines abstract expressionism as a framework for analyzing art since World War II. Focus on "Action Painting" and Color Field Painting, minimalism and conceptual art, pop art, earthworks and sited sculpture, new image painting, post-modernism, and related critical theory. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 690 - Women Artists of the 19th and 20th Centuries

Credits: 4.00

Examination of the works of women artists of the past two centuries. After considering current scholarship related to some of the theoretical issues involved in studying art by women, the works of women artists from the Middle Ages through the early 19th century will be surveyed briefly. Focus will then shift to works by women artists of the past 150 years and their relationship to and impact on major movements in modern art. Prereq: one art history and another appropriate course. Writing intensive.

ARTS 691 - A History of Venetian Art

Credits: 4.00

The artistic culture of Venice from Byzantine times through Tiepolo and Canaletto. Course emphasis will be on Renaissance Venice, including topics such as the reclining female nude, the courtesan portrait, and the origins of landscape painting. Artists to be studied include Bellini, Giorgione, Titian, and Palladio. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 692 - History of Photography

Credits: 4.00

History of the photograph from its origins in the aesthetic and technological context of the early 19th century to the present. Lectures and discussions on such topics as the impact of early photography on painting, 19th-century landscape and travel photography, pictorialism, abstract photography, the photograph as metaphor, photojournalism and the interpretation of war, and postmodernism and photography. Critical reading of texts by Beaudelaire, Benjamin, Barthes, Sontag, and Sekula. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS #693 - American Art

Credits: 4.00

A chronological survey of American painting and sculpture from the European colonization to the New York Armory Show of 1913, with emphasis on portraiture, narrative, still-life, and landscape painting. Examination of stylistic and thematic developments from the Puritan and Georgian New England portrait, the heroic narrative of the Revolutionary era, the romantic landscape to the realism of the post-Civil War era and the birth of modernism. Typical works include Copley's Portrait of Paul Revere, Cole's Course of Empire, Homer's Fog Warning, Cassatt's At the Opera, and Eakin's Max Schmitt in a Single Scull. Prereq: one 400- or 500-level art history course. Writing intensive.

ARTS 695 - Special Problems in the Visual Arts

Credits: 4.00

Topics and prerequisites to be announced before registration. May be repeated with permission of the instructor. Lab.

ARTS 695I - Problems in Visual Arts/Italy

Credits: 4.00

Part of the ITAL 685/686 study abroad program held in Italy.

Co-requisites:

ARTS 697 - Topics in Asian Art

Credits: 4.00

A thematic study of the major artistic achievements in India, China, and/or Japan from pre-history to the twentieth century. Works of art in various media, including painting, sculpture, ceramics, calligraphy, prints, architecture, and gardens, will be examined in relation to philosophical concepts and to their cultural/historical contexts. May be repeated up to a maximum of 8 credits. Prereq: one 400- or 500-level art history course or permission of the instructor. Writing intensive.

ARTS #699 - Museum Studies

Credits: 4.00

Introduction to the history and practices of American museums, including their purposes, organization, interpretation, policies and practices. Use of the Art Gallery, with occasional visits to other museums and art conservators. This course may not be used by studio art majors and B.F.A. candidates to fulfill the art history requirement. Prereq: two courses in art history or permission. Writing intensive.

ARTS 700H - Honors Seminar

Credits: 4.00 or 8.00

Requires successful completion of a written thesis supervised by two faculty advisers (one each from studio and art history faculty) to be reviewed by members of the department honors committee. The art history thesis will involve an original problem in art history and the studio art thesis will examine the student's own work. Honors students only.

ARTS 725 - Wood Multiples

Credits: 4.00

Development and construction of prototype furniture designs intended for more than one-of-a-kind production; jig and production strategies. (Offered concurrent to I.W.F.-sponsored biennial National Student Furniture Design Competition.) Prereq: ARTS 625 (4 credits.). Lab. Special fee.

ARTS 732 - Advanced Drawing

Credits: 4.00

Treatment of more complex compositional problems; application of a broader range of solutions to pictorial problems to reinforce and expand individual concepts of image and technique. May be repeated for a maximum of 12 credits. Prereq: ARTS 633. Lab.

ARTS 746 - Advanced Painting

Credits: 4.00

Development of a higher degree of technical skill to handle more advanced conceptual problems. Class assignments may be more individually directed. May be repeated for a maximum of 12 credits. Prereq: ARTS 646 (8 credits).

ARTS 767 - Bronze Casting

Credits: 4.00

Practice of designing, building, and maintaining a working sculpture foundry. Emphasis on a thorough understanding of the lost-wax investment casting process, including pattern making, mold making, wax working, investing, casting, chasing, and patination. Prereq: ARTS 667 (8 credits). Special fee. Lab. (Not offered every year.)

ARTS #784 - Dutch Genre Painting

Credits: 4.00

An intensive study of Dutch genre painting in the 17th century, focusing especially on the art of Vermeer and his contemporaries in the third quarter of the century. In addition to individual artists and their works, attention will be paid to aspects of their social background such as the emergence of privacy and the nuclear family, to parallels with the early novel, and to general themes governing realism as an artistic mode. Prereq: one 400- or 500-level art history course and instructor's permission. Writing intensive.

ARTS 791 - Art Education (Elementary)

Credits: 4.00

Children's creative growth as revealed through their visual expression. Development of elementary art education programs with emphasis on objectives, methods, materials and techniques to foster creativity. Suggested prereq: EDUC 500.

ARTS 792 - Art Education (Secondary)

Credits: 4.00

The creative process in the visual arts in relation to the development and skills of middle and high school students in the public schools; mechanics of beginning and maintaining a secondary art program; exploring resources for art education programs on the secondary level. Suggested prereq: EDUC 500.

ARTS 795 - Methods of Art History

Credits: 4.00

Essential bibliography and the methodology of research; the variety of approaches to art historical scholarship. Readings, discussion, and projects in connoisseurship, iconography, and other art historical methods. Open to advanced students with a strong art history background. Required for art history majors. It is strongly recommended that students take this course in their junior year. Prereq (for non-art history majors): permission. (Usually offered fall semester only.) Writing intensive.

ARTS 796 - Independent Study in the Visual Arts

Credits: 1.00 to 8.00

A) Photography; B) Sculpture; C) Drawing; D) Painting; E) Printmaking; F) Water Media; G) Architectural Design; H) Curatorial Assistant; I) Painting in Italy; J) Ceramics; K) Wood Design; L) Art History. Open to highly qualified juniors and seniors who have completed the advanced level courses in the chosen medium. May be repeated to a total of 8 credits. Prereq: permission of department chairperson and supervising faculty member or members. Special fee on some sections.

ARTS 798 - Seminar/Senior Thesis

Credits: 4.00 to 8.00

Readings and discussions oriented toward the intellectual premises of art. Culminates in mounting an exhibition of the student's work. Required of all students in the B.F.A program. Other advanced students may elect with instructor's permission. A year-long course; an IA grade (continuous course) will be given at the end of the first semester. Lab. Variable credit; may be repeated to a total of 8 credits. B.F.A. majors must take 8 credits total.

ARTS 799 - Seminar in Art History

Credits: 4.00

Topics and prerequisites to be announced before registration May be repeated with permission of instructor. Writing intensive.

Biochemistry

BCHM 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

BCHM 600W - Field Experience

Credits: 1.00 to 4.00

See description for BCHM 600. Cr/F. Writing intensive.

BCHM 658 - General Biochemistry

Credits: 3.00

A comprehensive, introductory course emphasizing the cellular metabolism and the structure and function of proteins, nucleic acids, carbohydrates, and lipids. Prereq: BIOL 411, CHEM 545-546, CHEM 547-548, or CHEM 651-652. Coreq: BCHM 659 (except BCHM majors who are encouraged to take BCHM 755).

Co-requisites: BCHM 659

BCHM 659 - General Biochemistry Laboratory

Credits: 2.00

Structured laboratory experiments that provide training in analytical and preparative techniques fundamental to modern biochemistry and molecular biology. Coreq: BCHM 658 (except for BCHM majors who are encouraged to take BCHM 755 instead of BCHM 659). Special fee.

Co-requisites: BCHM 658

BCHM 702 - Endocrinology

Credits: 4.00

Biochemical and molecular structure and function of vertebrate endocrine systems. Influence of endocrine system on the physiology of vertebrates, with special reference to mammals. Current investigations of the endocrine system as a regulator and integrator of body functions including such systems as growth, reproduction, metabolism, differentiation, and behavior. (Also offered as ANSC 702.) Prereq: BCHM 658 or 751;/or permission. Special fee.

BCHM 702W - Endocrinology

Credits: 4.00

See description for BCHM 702. Special fee. Writing intensive.

BCHM 711 - Genomics and Bioinformatics

Credits: 4.00

The methods, applications, and implications of genomics--the analysis of whole genomes. Microbial, plant and animal genomics are addressed, as well as medical, ethical and legal implications. The lab provides exposure and experience of a range of bioinformatics approaches--the computer applications used in genome analysis. Prereq: BIOL 604. (Also offered as GEN 711.) Lab.

BCHM 750 - Physical Biochemistry

Credits: 3.00

Structure, interactions, and physical-chemical properties of bio-molecules. Thermodynamic, kinetic, and

spectroscopic methods for the study of proteins and nucleic acids. Prereq: 2 semesters organic chemistry, 1 semester of calculus;/ or permission.

BCHM 751 - Principles of Biochemistry

Credits: 4.00

In-depth survey of biochemistry: macromolecular structure; structure and function of proteins, nucleic acids, carbohydrates, and lipids. Prereq: CHEM 657-658 or CHEM 651-652 or CHEM 545 and 546 and BCHM 658-659;/ or permission

BCHM 752 - Principles of Biochemistry

Credits: 4.00

Continuation of in-depth survey of biochemistry: metabolism of amino acids, nucleotides, carbohydrates and lipids; macromolecules synthesis and regulation; molecular biology of the eukaryotic cell. Prereq: BCHM 751 or permission.

BCHM 754 - Laboratory in Biochemistry and Molecular Biology of Nucleic Acids

Credits: 5.00

Application of modern techniques to the analysis of bio-molecules, with an emphasis on nucleic acids; includes DNA isolation and analysis, cloning, sequencing, and analysis of gene products. Prereq: BCHM 658/659; 751; or permission. (Also offered as P BIO 754 and GEN 754.) Special fee. Writing intensive.

BCHM 755 - Laboratory in Biochemistry and Molecular Biology

Credits: 5.00

Application of modern techniques to the characterization and purification of biomolecules, with an emphasis on proteins and nucleic acids; analysis of enzyme kinetics; and basic techniques used in molecular biology. (Majors anticipating taking BCHM 799 should take this course in their junior year.) Prereq: BCHM 751-752;/ or permission. BCHM 752 may be taken concurrently with BCHM 755. Special fee. Writing intensive.

BCHM 763 - Biochemistry of Cancer

Credits: 3.00

Molecular mechanisms of viral and chemical carcinogenesis; role of oncogenes in normal cell growth, development, and differentiation. Biochemical basis of cancer chemotherapy. Prereq: BCHM 658 or 751;/ or permission.

BCHM 771 - Molecular Genetics

Credits: 4.00

Structure, organization, replication dynamics, and expression of genetic information in eukaryotes. Focus on molecular genetic mechanisms of gene expression and its control; molecular genetics methods; molecular genetic control of cell division and differentiation during development. Prereq: BMCB 658 or 751; GEN 604;/ or permission. (Also offered as GEN 771.)

BCHM 790 - Current Topics in Biomedicine

Credits: 4.00

The dramatic advances in molecular biology and biochemistry during the last two decades have led to explosive growth in the accumulation of biomedical knowledge. To "discover" the literature is an essential element of training in any molecular discipline in biology. The first phase of the course will cover the use of literature search tools, and how to read scientific papers, write a review and make presentations effectively. The bulk of the time will be spent on current topics in biomedicine selected by the class. With guidance from the instructor, the class will derive reading lists, discuss the literature, and then write short essays on each topic. Participants will also prepare a "term" project for audiovisual presentation to the class in the final two weeks. Prereq: BIOL 605 or instructor permission. Writing intensive.

BCHM 794 - Protein Structure and Function

Credits: 4.00

Analysis of how the three-dimensional architecture of soluble and membrane proteins contributes to their biochemical function. Topics include methods for determining the structure of proteins, protein folding, protein targeting, and mechanisms of enzyme catalysis. Computer resources will be used for protein modeling and structural prediction. Prereq: BCHM 658 or 751.

BCHM 795 - Investigations

Credits: 1.00 to 4.00

Independent study in various areas including but not limited to: genetics, signal transduction, gene regulation, molecular evolution, biochemistry of cancer, biophysics of macromolecules, endocrinology, and glycobiology. May include readings, laboratory work, organized seminars and conferences. Prereq: permission. Not more than 4 total credit hours can be applied to BCHM or major electives.

BCHM 795W - Investigations

Credits: 1.00 to 4.00

See description for BCHM 795. Writing intensive.

BCHM 797 - Special Topics: Issues in Genome Evolution

Credits: 2.00

This special topics class will involve discussing the current literature on genome evolution, with a focus on underlying population genetic principles.

BCHM 799 - Senior Thesis

Credits: 1.00 to 4.00

Research in biochemistry and molecular biology for senior majors. Topics may include: developmental genetics; signal transduction; gene regulation; molecular evolution; biochemistry of cancer; biophysics of macromolecules; endocrinology; glycobiology. May be repeated to a maximum of 4 credits. Prereq: BCHM 659 or 755; permission. Writing intensive.

BCHM 799H - Honors Senior Thesis

Credits: 1.00 to 4.00

See description for BCHM 799. Writing intensive.

Biology

BIOL 400 - Professional Perspectives on Biology

Credits: 1.00

Views scope of biology and explores professional opportunities for biological sciences majors. Guest speakers from on and off campus present seminars and lead discussions on contemporary issues in biology. Departmental and interdepartmental major and option programs and strategies for achieving professional goals are discussed. Required for all first-semester biology majors. Cr/F.

BIOL 401 - Topics

Credits: 1.00

Introduction to specific areas of study within biological sciences. Provides an avenue to explore recent excitements in biological sciences, and fundamental questions about how living organisms function and adapt to different environments; introduction to contemporary research in various biological sciences. Several concurrent sections organized around themes; lecture/discussion. Cr/F.

BIOL 404 - Biotechnology and Society

Credits: 4.00

The history and science of biotechnology and genetic engineering of bacteria, plants, and animals including humans. Applications of DNA technology, cloning and genetic engineering to agriculture, biomedicine, industrial products and environmental problems. Discussion of economic, social, environmental, legal, and ethical issues related to the applications of biotechnology and genetic engineering. No credit for students who have completed BSCI 422 (UNHM).

BIOL 411 - Principles of Biology I

Credits: 4.00

Introduction to structure and function of cells; tissues and organs; physiological processes; genes and heredity. Required for majors in the biological sciences. Special fee. Lab.

BIOL 411H - Honors/Principles of Biology I

Credits: 4.00

See description for BIOL 411.

BIOL 412 - Principles of Biology II

Credits: 4.00

The biology of organisms, including survey of kingdoms, behavior, evolution, and ecology. Required for majors in the biological sciences. Special fee. Lab.

BIOL 412H - Honors/Principles of Biology II

Credits: 4.00

See description for BIOL 412.

BIOL 413 - Principles of Biology I

Credits: 4.00

Lecture and Laboratory introduction to biological principles; cell structure, function, replication, energetics and transport mechanisms; physiological processes; Mendelian, molecular genetics and gene technology. Required for students majoring in the life sciences. Cannot be taken for credit after BIOL 411 or equivalent. Special fee. Lab.

BIOL 414 - Principles of Biology II

Credits: 4.00

Lecture and laboratory survey of the five kingdoms of life; physiology of cells, tissues, organs, and organ systems; evolution; human impact on the biosphere. Required for students majoring in the life sciences. Cannot be taken for credit after BIOL 412 or equivalent. Special fee. Lab.

BIOL 415 - Watershed Watch**Credits:** 2.00

Project Watershed Watch brings together several highly successful areas of excellence at UNH: capabilities in satellite remote sensing and geographic information systems, forest ecology, limnology and microbial ecology. Watershed Watch will recruit up to 40 sophomores whose majors are currently undeclared to study watershed interactions and relate them to established methods of monitoring the quality of forest, lakes, and streams. Students will work along side faculty in an authentic, experience-based, and hands-on learning environment. Prereq: instructor approval.

BIOL 416 - Watershed Watch - Research Experience**Credits:** 2.00

This course builds upon the experiences gained while conducting the field and laboratory research from BIOL 415 (Watershed Watch Summer Institute). Students will be expected to integrate the conceptual and hands-on components learned in BIOL 415 into their own independent scientific research projects conducted under the mentoring of a faculty advisor from their college or university campus. Using a seminar format, students will receive additional lecture and reading materials (via distance-learning tools), compare their research progress (e.g., problems and accomplishments) with the progress of other students on other campuses, and will integrate their findings into the larger studies of the Merrimack and Pasquotank River watersheds. Ultimately, students will present their results at the UNH Undergraduate Research Conference at the end of April. (IA grading). Prereq: BIOL 415 and instructor approval. May be repeated.

BIOL 420 - Introduction to Forensic Sciences**Credits:** 4.00

This course is an introductory survey course in Forensic Sciences. The focus will be on the recognition, collection, preservation and analysis of physical evidence related to crime scene investigations. Students will be presented with various state of the art techniques utilized in the analysis of physical evidence with the presumption that students do not necessarily have in depth scientific or technical backgrounds (e.g., chemistry, biology and/or physics). The goal of this class will be to provide students with an understanding of what criminalistics entails and to prepare them for additional, more in-depth classes in criminalistics or forensic science. Special fee.

BIOL 444 - Emergence of Life in the Universe**Credits:** 4.00

How did life begin? Is there life on other planets? Can "synthetic" life be created in the laboratory? An informed exploration of questions and theories about the origin and nature of life, the mechanisms of evolution and diversification, the possibilities of past and future dissemination of life in the universe, and the growing power of human beings to understand and influence these phenomena, including ethical issues. Writing intensive.

BIOL 444A - Biotechnology and Society**Credits:** 4.00

The history and science of biotechnology and genetic engineering of bacteria, plants, and animals including humans. Applications of DNA technology, cloning and genetic engineering to agriculture, biomedicine, industrial products and environmental problems. Discussion of economic, social, environmental, legal, and ethical issues related to the applications of biotechnology and genetic engineering. No credit for students who have completed BSCI 422 (UNHM).

BIOL 520 - Our Changing Planet

Credits: 4.00

Ecosystem interrelations and factors critical to maintain sustainability will be addressed in this course. Environmental issues such as water usage, pollution, and treatment; air and soil quality; fossil fuels and alternative energy sources will be presented. Not for credit if credit earned for ENE 520.

BIOL 528 - Applied Biostatistics I

Credits: 4.00

Development of elementary statistical techniques through the analysis of prepared biological data. Continuous and discrete probability distributions, distributions of sample statistics, small-sample theory, regression, correlation, and analysis of variance. No credit for students who have completed ADM 430; ADMN 420; EREC 525; HHS 540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.

BIOL 541 - General Ecology

Credits: 4.00

Physical and biological factors affecting distribution, abundance, and adaptations of organisms. Population, community, and ecosystem structure and function. Prereq: BIOL 411-412 or equivalent. Special fee. Lab.

BIOL 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

BIOL 600W - Field Experience

Credits: 1.00 to 4.00

See description for BIOL 600. Cr/F. Writing intensive.

BIOL 601 - Biology of Plants

Credits: 4.00

Structural and functional biology of the plant organism, with emphasis on land plants. Evolution of vegetative processes and sexual reproduction/breeding systems. Plant adaptations to environmental challenges. Prereq: BIOL 411, 412 or ZOOL 412.

BIOL 604 - Principles of Genetics

Credits: 4.00

Chemical structure of genetic material, Mendelism, gene recombination, and chromosome mapping. Mutation, gene expression and regulation, recombinant DNA. Quantitative inheritance and population genetics. Prereq: BIOL 411 and 412; CHEM 403 and 404. College math or statistics suggested. Offered each semester. Special fee.

BIOL 605 - Eukaryotic Cell and Developmental Biology

Credits: 4.00

Cell and developmental biology of eukaryotic animals and plants. General topics include the structure and function of major cellular compartments, an analysis of intracellular dynamics, mechanisms of intercellular communication, and mechanisms for elaborating and integrating multicellular animals and plants. Special topics include mitogenesis, cell motility, oncogenesis, control of gene expression, and pattern formation. Prereq: BIOL 411 and 412; CHEM 403 and 404. Special fee. Lab.

BIOL 695 - Biology Teaching Practices

Credits: 1.00 to 4.00

Students assist in teaching labs in undergraduate biology courses supervised by the lab coordinator/instructor. Responsibilities include facilitating lab endeavors, giving a presentation, and writing a report. Prereq: permission. May be repeated to 4 credits maximum.

BIOL 696 - Biology Teaching Practices

Credits: 1.00 to 4.00

See description for BIOL 695.

BIOL 711 - Applied Biostatistics II

Credits: 4.00

Design and analysis of biological and ecological research experiments. "Real world" studies used to discuss the identification of hypotheses, appropriate experimental design, and the application of statistical analyses including ANOVA, ANCOVA, correlation and regression, cluster analysis, classification and ordination techniques. Theoretical statistical concepts tailored to consider student's own thesis and dissertation research, allowing statistical problems to be addressed at various stages of the research process. Common computer packages used for analyses. Prereq: BIOL 528; permission.

BIOL 795 - Independent Investigations

Credits: 1.00 to 4.00

Topics may include teaching practicum in a biological science supervised by a biology faculty member (permission required); research practicum in a biological science supervised by a biology faculty member (permission required); or special topics of current interest in biology. Lecture-discussion format. Prereq: 12 credits of biology or permission. May be repeated to 4 credits.

BIOL 795W - Independent Investigations

Credits: 1.00 to 4.00

See description for BIOL 795. Writing intensive.

BIOL 799 - Honors Senior Thesis

Credits: 2.00 to 8.00

Independent research requiring a written proposal, a thesis, and a presentation of research results to an audience of faculty and/or students. Intended for biology majors completing biology honors-in-major requirements. Contact biology program coordinator prior to senior year to arrange supervision and obtain permission. 2 consecutive semesters. (4 credit minimum total; 8 credits maximum.) Writing intensive.

Administration

ADMN 400 - Introduction to Business

Credits: 4.00

This course will introduce students to business organizations, the business disciplines and critical issues in contemporary business. The priority will be in having students develop strong intellectual foundations in business, knowledge of core disciplines of business, and an awareness of businesses' role in the economy and in the larger society. The course will include once a week lectures and also small group discussion sessions. The lectures will be organized by the lead WSBE faculty person and include visits and discussions with executives from New Hampshire companies. Writing intensive.

ADMN 403 - Computing Essentials for Business

Credits: 1.00

Self-paced course covering the fundamental skills and proficiency of general business software applications. Topics will include word processing and spreadsheet applications. Cr/F.

ADMN 405 - Freshman Academic Experience I

Credits: 1.00

An introduction to the nature of academic knowledge, academic standards, and academic management skills essential for success in the University and the Whittemore School. An introduction to a volume or book or readings on an important business and/or economic topic. Cr/F.

ADMN 406 - Freshman Academic Experience II

Credits: 1.00

Reading and a question-focused discussion of a volume or book of readings on an important business and/or economic topic. Further consideration of academic issues facing college freshmen. How to deal with difficult academic problems. Cr/F.

ADMN 410 - Management Information Systems

Credits: 4.00

This course provides an introduction to computer literacy, basic computer hardware and software concepts, business applications of information technology and computer ethics. Hands-on exercises include spreadsheets, databases and web pages. Prereq: ADMN 403.

ADMN 420 - Business Statistics

Credits: 4.00

Introductory coverage of statistical methods for managerial decision-making: probability, descriptive and inferential statistics, and regression. Quantitative techniques common to many introductory statistics courses are covered, but the emphasis is on understanding concepts such as uncertainty, inferences from sample data, and model formulation, and on utilizing these techniques as aids in decision-making. No credit for students who have had ADM 430; BIOL 528; EREC 525; HHS 540; MATH 439; MATH 539; MATH 644; PYSC 402; SOC 502. Prereq: ADMN 403; MATH 420 or 424A.

ADMN #444 - Corporate Social Responsibility in a Global Economy

Credits: 4.00

An in-depth exploration of the relationship between the modern corporation and democratic values. Among industrialized democracies, corporate concentrated economic power privileges those who strategically control the firm and have direct claims on the firm's surplus. This surplus generates new wealth which raises living standards over time. Also explores the tension between the rights of the private/civil sector and

the reach of government. Writing intensive.

ADMN 502 - Financial Accounting

Credits: 4.00

Fundamentals of financial accounting concepts and procedures for analyzing economic events and the preparation and use of financial statements. No credit for students who have had ACFI 501 or ADM 532.

ADMN 503 - Managerial Accounting

Credits: 4.00

The use of information by managers to (1) determine the cost and profitability of the organization's products or services; (2) plan, control, and evaluate routine operations; and (3) make special non-routine decisions. The demand for managerial accounting information is derived from an integrated treatment of organizational objectives, an orientation to customers, and a focus on activities as the unit of analysis for measurement of cost, quality, and time. No credit for students who have had ADM 533. Prereq: ADMN 502.

ADMN 601 - Introduction to Financial Management

Credits: 4.00

The investments, financing, and dividend decisions of the firm in a global setting. Topics include capital budgeting, designing and issuing securities, manager performance evaluation, resolution of agency problems, and working capital management. Open to WSBE majors only. Prereq: ECON 401. Pre- or Coreq: ADMN 420, ADMN 502; ECON 402.

ADMN 611 - Behavior in Organizations

Credits: 4.00

Behavioral science concepts applied to work settings. Focus on understanding and analyzing individual beliefs, values, goals, perceptions, motivation, commitment, and decision making; group structures and processes (interpersonal skills, communication, conflict resolution, leadership, and team work); organizational control systems (rewards, task design, performance appraisal); outcomes (satisfaction and development of the person as well as the organization); and organizational change. Open to WSBE majors only. No credit for students who have had MGT 580. Prereq: ADMN 400, ADMN 403, ADMN 502. Pre- or Coreq: ADMN 503. Writing intensive.

ADMN 640 - Quantitative Decision Making

Credits: 4.00

Introduction to the use of quantitative tools in the decision-making process of an organization. Planning and operational problems in the manufacturing and services sectors are emphasized. Topics include forecasting, capacity planning, optimization, project scheduling, simulation and risk analysis, quality, inventory management, and waiting lines. Open to WSBE majors only. Prereq: ADMN 420; ADMN 503.

ADMN 651 - Marketing

Credits: 4.00

Covers marketing as the process of planning and developing goods and services to satisfy the needs of target customers: consumers, other businesses, institutions. Focus on how marketing contributes to the firm's goals through product planning, pricing, promotion, and distribution policies. Open to WSBE majors only. No credit for students who have had MKTG 550 or HMGT 600. Prereq: ADMN 400; ECON 401.

ADMN 685 - Study Abroad

Credits: 1.00 to 16.00

Open to students studying abroad in the discipline as approved by the department chair and Undergraduate Programs Office. Special fee. Cr/F.

ADMN 686 - Study Abroad**Credits:** 1.00 to 16.00

Open to students studying abroad in the discipline as approved by the department chair and Undergraduate Programs Office. Special fee. Cr/F.

ADMN 695 - Independent Study**Credits:** 1.00 to 12.00

Individual research projects that are student designed. Initial sponsorship of a business administration faculty member must be obtained, and approval of WSBE Undergraduate Programs Office and department chair. For juniors and seniors in high standing.

ADMN 695W - Independent Study**Credits:** 1.00 to 12.00

See description for ADMN 695. Writing intensive.

ADMN 696 - Supervised Student Teaching Experience**Credits:** 4.00

Participants are expected to perform such functions as leading discussion groups, assisting faculty in undergraduate courses that they have successfully completed or working as peer advisers in the advising center. Enrollment is limited to juniors and seniors who have above-average G.P.A.s. Reflective final paper is required. Prereq: permission of instructor, department chair, and director of undergraduate programs. No more than four credits may be earned as a teaching assistant in any one course. May be taken no more than 8 times for a maximum of 8 credits. Cr/F.

ADMN 703 - Strategic Management: Decision Making**Credits:** 4.00

Capstone course: Problem-solving, decision-making, and strategic thinking relative to managerial, economic, ethical, legal, political, social, and technological aspects of an organization's environment. Integrates the functional discipline skills within the role of the general manager as leader and chief strategist, organizational builder and doer. Case discussion and analysis, industry and competitive analysis, environmental scanning, industry simulation, strategic audit, stakeholder analysis, values, ethics and social issues management within the public policy process are important course components. Open to WSBE majors only. Prereq: ADMN 601; ADMN 611; ADMN 640; ADMN 651 and senior standing.

ADMN 795 - Internship**Credits:** 1.00 to 12.00

On-the-job skill development through fieldwork in an organization (business, industry, health, public service, etc.). Normally, supervision is provided by a qualified individual in the organization, with frequent consultation by a faculty sponsor. Written report required. Internships may be part or full time, with course credits assigned accordingly. May not be used as a Group C elective. Prereq: Cumulative GPA of at least 3.0, permission of the instructor, department chair, and director of undergraduate programs. May be repeated up to a maximum of 12 credits. Cr/F.

ADMN 798 - Topics**Credits:** 1.00 to 4.00

Special topics; may be repeated up to a maximum of 12 credits. Prereq: permission.

ADMN 798W - Topics**Credits:** 1.00 or 4.00

See description for ADMN 798. Writing intensive.

ADMN 799 - Honors Thesis/Project

Credits: 4.00 to 8.00

Supervised research leading to the completion of an honors thesis or project; required for graduation from the honors program in administration. Prereq: permission of director of undergraduate programs and department chair. Writing intensive.

Chemical Engineering

CHE 410 - Energy and Environment

Credits: 4.00

Energy supply in this country and the world; conventional fuel reserves: coal, oil, natural gas; alternative sources: nuclear, solar, geothermal, et. Forecasts and strategies to meet needs. Environmental pollution, sources, and economic and environmental impacts. Methods for pollution control. Regulatory standards for environmental protection. Prereq: good background in high school chemistry

CHE 410H - Honors/Energy and Environment

Credits: 4.00

See description for CHE 410.

CHE 501 - Introduction to Chemical Engineering I

Credits: 3.00

Systems of units; material balances and chemical reactions; gas laws; phase phenomena.

CHE 502 - Introduction to Chemical Engineering II

Credits: 3.00

Energy and material balances for systems with and without chemical reactions; design case studies.

CHE 601 - Fluid Mechanics and Unit Operations

Credits: 3.00

Continuity, momentum, and energy equations; laminar and turbulent flow in pipes; rheology. Applications to flow in porous media, filtration, and fluidization.

CHE 602 - Heat Transfer and Unit Operations

Credits: 3.00

Thermal properties of materials, steady-state and transient conduction and convection; radiation; applications to heat exchangers and process equipment.

CHE 603 - Applied Mathematics for Chemical Engineers

Credits: 4.00

Mathematical modeling and analysis of chemical engineering problems. Analytical methods for first- and second-order differential equations; numerical solutions; series solutions; Bessel functions; Laplace transforms; matrix algebra. Interpretation and solution of partial differential equations. Prereq: knowledge of scientific computer programming. Lab.

CHE 604 - Chemical Engineering Thermodynamics

Credits: 4.00

Volumetric and phase behavior of ideal and real gases and liquids; cycles; steady-flow processes; chemical equilibrium. Lab.

CHE 612 - Chemical Engineering Laboratory I

Credits: 3.00

Selected experiments in fluid mechanics, heat transfer, and unit operations. Writing intensive.

CHE 651 - Biomanufacturing

Credits: 4.00

Course begins by introducing students to the proteins and companies of biotechnology and to current good

manufacturing practices. For remainder of the course, students use cell culture of bacteria, mammalian and yeast cells to produce human proteins using the tools and manufacturing standards, operating procedures of biotechnology, including upstream and downstream processing of proteins, and quality control of protein production. Permission required. Also listed as ANSC 651 and MICR 651.

CHE 695 - Chemical Engineering Project

Credits: 1.00 to 4.00

Independent research problems carried out under faculty supervision.

CHE 696 - Independent Study

Credits: 1.00 to 4.00

Prereq: permission of the adviser and department chairperson; granted only to students having superior scholastic achievement.

CHE 701 - Introduction to Polymer Engineering

Credits: 4.00

Principles of polymer chemistry, polymerization kinetics, polymer rheology, and material characteristics. Design and analysis of polymer reactors, extruders, molding machines, and other forming operations. Lab.

CHE 703 - Mass Transfer and Stagewise Operations

Credits: 3.00

Diffusion in gases, liquids, and solids; design and analysis of distillation, absorption, adsorption, extraction, and other stagewise equipment and operations.

CHE 705 - Natural and Synthetic Fossil Fuels

Credits: 4.00

Study of U.S. and foreign reserves of coal, oil, and natural gas. Petroleum processing and refining. Coal, oil shale, and tar sand. Gasification and liquefaction of coal. Lab.

CHE 707 - Chemical Engineering Kinetics

Credits: 3.00

Use of laboratory data to design commercial reactors. Continuous, batch, plug-flow, and stirred-tank reactors for homogeneous and catalytic multiphase reactions.

CHE 708 - Chemical Engineering Design

Credits: 4.00

Introduction to cost engineering. Application of acquired skills to design of chemical processes. Individual major design project required. Safety for industrial processes. Lab. Writing intensive.

CHE 712 - Introduction to Nuclear Engineering

Credits: 4.00

Development of nuclear reactors; binding-energy; radioactivity; elements of nuclear reactor theory; engineering problems of heat transfer, fluid flow, materials selection, and shielding; environmental impacts.

CHE 713 - Chemical Engineering Laboratory II

Credits: 3.00

Selected experiments in mass transfer, stagewise operations, thermodynamics, and kinetics. Writing intensive

CHE 722 - Introduction to Microfluidics

Credits: 4.00

Fundamentals and applications of microfluidics; scaling laws; microfabrication technology; hydrodynamics

and electrodynamics; interfacial phenomena; capillary effects and diffusion; microvalves; micropumps; lab-on-a-chip systems; biochips. Prereq: fluids mechanics course or permission of instructor.

CHE 744 - Corrosion

Credits: 4.00

Fundamentals of corrosion processes in industrial and environmental settings; thermodynamics, kinetics, and mass transport in local corrosion cells; protection by electrochemical, chemical, surface modification or barrier methods; instrumental methods in corrosion science. Lab.

CHE 752 - Process Dynamics and Control

Credits: 4.00

Dynamic behavior of chemical engineering processes described by differential equations; feedback control concepts and techniques; stability analysis. Lab. (Also listed as ENE 752.)

CHE 761 - Biochemical Engineering

Credits: 4.00

Immobilized enzyme technology, microbial biomass production, transport phenomena in microbial systems, biological reactor design, process instrumentation and control, applications in separation and purification processes. Lab.

CHE 762 - Biomedical Engineering

Credits: 4.00

Transport phenomena and chemical reactions in physiological systems. Formulation and interactions of biomaterials. Artificial kidney, vascular prosthesis, drug delivery, protein and cell adhesion. Introduction to tissue engineering. Lab.

Chemistry

CHEM 400 - Freshman Seminar

Credits: 1.00

An introduction to the chemistry profession. Talks and workshops on the career of a chemist in academia, industry, medicine, law, teaching and government. Required for chemistry majors. May be repeated. Cr/F.

CHEM 401 - Chemistry Essentials

Credits: 2.00

Preparatory chemistry course designed for students who wish to strengthen their chemistry background prior to taking CHEM 403 (General Chemistry I). Topics may include: basic math, pertinent to chemistry, stoichiometry, introduction to the periodic table, among others. Not a prerequisite for CHEM 403, but recommended for students with weak backgrounds

CHEM 403 - General Chemistry I

Credits: 4.00

Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 401, 405, or 409. Required for chemistry majors.

CHEM 404 - General Chemistry II

Credits: 4.00

Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Required for chemistry majors. Special fee. Lab. Prereq: CHEM 403 and 403L.

CHEM 404H - Honors/General Chemistry II

Credits: 4.00

See description for CHEM 404. Honors course is designed for students who have enrolled in the honors degree program. Special fee. Lab. Cannot be taken for credit if credit received for CHEM 402. Prereq: CHEM 403.

CHEM 405 - Chemical Principles for Engineers

Credits: 4.00

Basic principles; atomic structure, bonding, equilibria, and thermodynamics. Prereq: one year of high school chemistry, algebra, and knowledge of logarithms. Cannot be taken for credit if credit received for CHEM 403-404. Required for chemical engineering, mechanical engineering, electrical and computer engineering, environmental engineering: industrial majors. Not applicable for credit for majors in chemistry or biochemistry.

CHEM 409 - Chemistry and Society

Credits: 4.00

Elementary survey of chemistry; integrates principles and applications. For students who do not intend to take any other chemistry courses and those interested in satisfying a general education science requirement. Not a prerequisite for any other chemistry courses. Includes lab like activities during class time. (Not offered every year.)

CHEM 413 - General Chemistry Lecture I

Credits: 3.00

Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Special permission required. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, 403, 405, or 409.

CHEM 414 - General Chemistry Lab I

Credits: 1.00

Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 401, 403, 405, or 409.

CHEM 415 - General Chemistry Lecture II

Credits: 3.00

Fundamental laws and concepts applied to nonmetals, metals, and their compounds. For students who plan to take further chemistry courses. Previous chemistry recommended. Knowledge of algebra, exponentials, and logarithms required. Cannot be taken for credit if credit received for CHEM 402 or 404. Prereq: CHEM 403 or 413.

CHEM 416 - General Chemistry Lab II

Credits: 1.00

Lab application of fundamental laws and concepts applied to nonmetals, metals and their compounds. Previous general chemistry lecture required. Special permission. Special fee. Not offered every summer. Cannot be taken for credit if credit received for CHEM 402 or 404. Prereq: CHEM 403 or 414.

CHEM #444 - Element of Chemistry

Credits: 4.00

This course will deal with a single element for course participants to examine and discuss. We will explore the historical and social context of its discovery. We will consider why the element is potentially crucial to living beings, how it interacts with some other elements and our perception of the element. This will involve an overview of some chemical and biological concepts. This course cannot be counted towards the major. (Not offered every year.)

CHEM 444A - Fire and Ice

Credits: 4.00

Embodies a focus on the perception, movement, creation, understanding, and everyday use of heat. Examines historical evolution and controversy regarding the concept of heat across physical and life sciences.

CHEM 444B - Symmetry in Nature, The Arts, and Daily Life

Credits: 4.00

The elements of symmetry and its occurrence and role in nature (bilateral symmetry in butterflies and animals; cylindrical symmetry in trees and volcanoes; helical symmetry in shells, proteins, and DNA; the role of symmetry in design of medicines); its role in art and design (textiles, advertising); and in our lives (design of houses, chairs, scissors). The course is non-mathematical and is open to students having little background in science. Writing intensive.

CHEM 496 - Freshman Independent Study

Credits: 1.00 to 8.00

Independent study for students who have not had organic chemistry. Designed for students who wish to pursue independent study topics, but do not have the experience to pursue lab research. Cannot be

counted toward the major. (Not offered every year.)

CHEM 501 - Peer-led Team Learning in Chemistry

Credits: 2.00

Initial experience as peer instructional leader. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students. Permission required. Prereq: CHEM 403 or 404.

CHEM 502 - Advanced Peer-led Team Leadership in Chemistry

Credits: 1.00

Development and assessment of leadership skills. Practical application of theories of cognition, group dynamics, learning, and motivation to helping other students learn chemistry in general chemistry. Requires one weekly meeting with students. Permission required. Prereq: CHEM 403 and CHEM 501.

CHEM 517 - Quantitative Analysis

Credits: 4.00

Combines lecture, laboratory, and in-class problem solving to study solubility, acid-base, redox, and complexation reactions and their application for quantitative chemical measurements. Prereq: CHEM 404 or 405. Lab.

Co-requisites: CHEM 518

CHEM 518 - Quantitative Analysis Laboratory

Credits: 1.00

Volumetric methods with an emphasis on technique; separations; and selected instrumental methods such as potentiometry, spectrophotometry, atomic absorption, and gas chromatography. Prereq: CHEM 404 or 405. Special fee.

Co-requisites: CHEM 517

CHEM 545 - Organic Chemistry

Credits: 3.00

Introductory study of carbon compounds for those who desire a brief terminal course. Prereq: CHEM 404 or 405. Students receiving credit for CHEM 545 may not receive credit for CHEM 402, 547-548, or 651-652.

Co-requisites: CHEM 546

CHEM 546 - Organic Chemistry Laboratory

Credits: 2.00

Special fee. Lab. **Co-requisites:** CHEM 545

CHEM 547 - Organic Chemistry I

Credits: 3.00

Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for chemistry and biochemistry majors. Prereq: CHEM 404; 405;/or permission. Students receiving credit for CHEM 547-548 may not receive credit for either CHEM 545 or 651-652.

Co-requisites: CHEM 549

CHEM 548 - Organic Chemistry II

Credits: 3.00

Principal classes of organic compounds, aliphatic and aromatic; class reactions and structural theory. Intended primarily for chemistry and biochemistry majors. Prereq: CHEM 404; 405; and 547/or permission. Students receiving credit for CHEM 547-548 may not receive credit for either CHEM 545 or CHEM 651-652.

Co-requisites: CHEM 550

CHEM 549 - Organic Chemistry Laboratory

Credits: 2.00

Special fee. Lab.**Co-requisites:** CHEM 547

CHEM 550 - Organic Chemistry Laboratory

Credits: 2.00

Special fee. Lab.**Co-requisites:** CHEM 548

CHEM 574 - Introduction to Inorganic Chemistry

Credits: 3.00

Elementary concepts including periodicity, descriptive chemistry of metals and nonmetals, and coordination compounds. Prereq: CHEM 404; 405;/or permission.

CHEM 651 - Organic Chemistry I

Credits: 3.00

Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Prereq: CHEM 404; 405;/or permission. Students receiving credit for CHEM 651-652 may not receive credit for either CHEM 545 or 547-548.

Co-requisites: CHEM 653

CHEM 652 - Organic Chemistry II

Credits: 3.00

Principal classes of organic compounds, aliphatic and aromatic, class reactions and structural theory. Intended primarily for pre-healing arts, biological science, and health science students. Prereq: CHEM 404; 405;and 651/or permission. Students receiving credit for CHEM 651-652 may not receive credit for either CHEM 545 or 547-548.

Co-requisites: CHEM 654

CHEM 652A - Organic Chemistry

Credits: 3.00

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CHEM 653 - Organic Chemistry Laboratory

Credits: 2.00

Special fee. Lab.**Co-requisites:** CHEM 651

CHEM 654 - Organic Chemistry Laboratory

Credits: 2.00

Special fee. Lab.**Co-requisites:** CHEM 652

CHEM #681 - Physical Chemistry

Credits: 3.00

A one-semester survey course. Properties of matter, thermochemistry and thermodynamics, solutions, chemical equilibria, chemical kinetics. Prereq: CHEM 403 and 404, or CHEM 405. Coreq: CHEM 682. No credit earned if credit received for CHEM 683 and 685, or CHEM 684 and 686.

Co-requisites: CHEM 682

CHEM #682 - Physical Chemistry Lab

Credits: 1.00

Properties of matter, thermochemistry and thermodynamics, solutions, chemical equilibria, chemical kinetics. Prereq: CHEM 403 and 404 or CHEM 405 with labs. Coreq: CHEM 681. Special fee. No credit earned if credit received for CHEM 683 and 685, or CHEM 684 and 686.

Co-requisites: CHEM 681

CHEM 683 - Physical Chemistry I

Credits: 3.00

The properties of gases, liquids, and solids; thermochemistry and thermodynamics; solutions, chemical equilibria, reaction rates, conductance, and electromotive force. Prereq: CHEM 404 or 405; MATH 426. Pre- or Coreq: PHYS 402 or 407. Coreq: CHEM 685-686.

Co-requisites: CHEM 685

CHEM 684 - Physical Chemistry II

Credits: 3.00

The properties of gases, liquids, and solids; thermochemistry and thermodynamics; solutions, chemical equilibria, reaction rates, conductance, and electromotive force. Prereq: CHEM 404 or 405 and CHEM 683; MATH 426. Pre- or Coreq: PHYS 402 or 407.

Co-requisites: CHEM 686

CHEM 685 - Physical Chemistry Laboratory

Credits: 2.00

Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Prereq: CHEM 404 or 405; MATH 426. Pre- or Coreq: PHYS 407 or 402. Coreq: CHEM 683-684. Special fee.

Co-requisites: CHEM 683

CHEM 686 - Physical Chemistry Laboratory

Credits: 2.00

Measurement of thermodynamic properties, chemical kinetics, and methods of determining the structure of matter. Prereq: CHEM 404 or 405; MATH 426. Pre- or Coreq: PHYS 407 or 402. Coreq: CHEM 683-684. Special fee.

Co-requisites: CHEM 684

CHEM 696 - Independent Study

Credits: 1.00 to 4.00

For exceptional students. Individual reading, writing, or laboratory work carried out under the tutelage of a faculty member. May be used to replace specific required courses in chemistry. Prereq: approval of the adviser and department chairperson. Credits to be arranged.

CHEM 698 - Seminar

Credits: 1.00

Student reports on topics of interest. Prereq: CHEM 548 or 652; CHEM 684. Writing intensive.

CHEM 699 - Thesis

Credits: 4.00

Yearlong investigation in a selected topic, with background and experimental investigation. For chemistry majors who have completed CHEM 548, 684, and 762. Required for B.S. majors. Strongly recommended for B.A. chemistry majors. Prereq: 2.50 average and approval of department chairperson. Permission required. Lab. Two semesters of 4 credits each are required. Writing intensive.

CHEM 708 - Spectroscopic Investigations of Organic Molecules

Credits: 3.00

Identification and structural analysis of chemical compounds by selected instrumental methods. Typical topics include proton and carbon-13 NMR spectroscopy, IR and UV spectroscopy, and mass spectrometry.

CHEM 755 - Advanced Organic Chemistry

Credits: 3.00

Methods of synthesis and determination of structure, including stereochemistry of complex organic compounds. Prereq: CHEM 548 or 652 or equivalent. Coreq for CHEM majors: 756.

Co-requisites:

CHEM 756 - Advanced Organic Chemistry Laboratory

Credits: 2.00 or 3.00

Synthesis and structural determination of complex organic compounds, techniques for the separation, determination of purity, and identification of compounds by spectroscopic and chemical means. Coreq for CHEM majors: 755. Special fee.

Co-requisites:

CHEM 762 - Instrumental Methods of Chemical Analysis

Credits: 3.00

Theory, instrumentation, and application of methods such as atomic absorption, coulometry, emission spectrography, gas and liquid chromatography, polarography, potentiometry, IR and UV-VIS absorption spectrophotometry, and mass spectrometry to chemical analysis. Prereq: CHEM 406 or 517; CHEM 684 as a pre- or co requisite;/or permission.

Co-requisites: CHEM 763

CHEM 763 - Instrumental Methods of Chemical Analysis Laboratory

Credits: 2.00 or 3.00

Experimental parameters, error analysis, and applications of the methods covered in CHEM 762. Special fee.

Co-requisites: CHEM 762

CHEM 774 - Inorganic Chemistry

Credits: 3.00

Basic theoretical concepts and their applications to inorganic reactions and compounds. Prereq: organic chemistry; physical chemistry;/or permission.

Co-requisites: CHEM 775

CHEM 775 - Inorganic Chemistry Laboratory

Credits: 2.00

In-depth instruction of selected techniques of synthesis and characterization of inorganic compounds. Emphasis on the analysis and presentation of results and experiment planning. Includes open-ended and collaborative projects. Special fee.

Co-requisites: CHEM 774

CHEM 776 - Physical Chemistry III

Credits: 4.00

Application of quantum theory to atomic electron structure, spectroscopy, and molecular structure. Prereq: CHEM 683-684. Special fee. Lab.

CHEM 795 - Special Topics

Credits: 2.00 to 4.00

New or specialized topics not covered in regular course offerings. May be repeated to a maximum of 4 credits. Prereq: permission.

Chinese

CHIN 400 - Conversational Chinese

Credits: 4.00

this course, for students with no previous training in Chinese, is designed to promote conversational skills in the target language. Communicative strategies are developed within the context of cultural components. Topics include those which enable students to function in China in everyday situations (e.g., food, leisure activities, transportation, business exchanges, tourism, and daily life). this course does not satisfy the foreign language requirement. It may be repeated for up to a maximum of 8 credits. Cr/F. Special fee.

CHIN 401 - Elementary Chinese I

Credits: 4.00

Aural-oral practice in meaningful contexts of the fundamental vocabulary and grammar of Mandarin Chinese. Reading and writing in Romanization (pinyin) and in Chinese characters. Special fee.

CHIN 402 - Elementary Chinese II

Credits: 4.00

Aural-oral practice in meaningful contexts of the fundamental vocabulary and grammar of Mandarin Chinese. Reading and writing in Romanization (pinyin) and in Chinese characters. Special fee.

CHIN 410 - Communicative Chinese for the Professions

Credits: 4.00

A skill-based course for students who wish to focus on the Chinese language in relation to the health fields, business, law, tourism, and social service. Helps students develop a practical understanding of China through communicative activities in specific fields. Does not satisfy the foreign language requirement. Special fee.

CHIN 425 - Introduction to Chinese Culture and Society

Credits: 4.00

Taught in English. Aspects of the political, social and cultural life of China through readings, discussion, papers, and film. Strongly recommended for students planning an Asian Studies minor. Special fee.

CHIN 503 - Intermediate Chinese I

Credits: 4.00

Continuation of CHIN 401-402. Conducted entirely in Chinese, with work on listening comprehension, speech, reading, and writing of Chinese characters, with increasing attention to reading contemporary Chinese texts. Special fee

CHIN 504 - Intermediate Chinese II

Credits: 4.00

Continuation of CHIN 401-402. Conducted entirely in Chinese, with work on listening comprehension, speech, reading, and writing of Chinese characters, with increasing attention to reading contemporary Chinese texts. Special fee

CHIN 521 - Chinese Literature in Translation

Credits: 4.00

Representative works of master Chinese writers reflecting themes of 20th century China. Lu Hsun, Shen Ts'ung-Wen, Bei Dao, and others. Lectures, discussion, and readings in English. Special fee.

CHIN 631 - Advanced Chinese Conversation and Composition I

Credits: 4.00

Advanced spoken and written Chinese to attain aural-oral fluency. Advanced reading and composition. Prereq: CHIN 504 with a grade of C or better or permission of the instructor. Special fee.

CHIN 632 - Advanced Chinese Conversation and Composition II

Credits: 4.00

Advanced spoken and written Chinese to attain aural-oral fluency. Advanced readings and composition. Prereq: CHIN 631 with a grade of C or better or permission of instructor. Special fee.

CHIN 795 - Independent Study

Credits: 1.00 to 4.00

Open to highly qualified juniors and seniors. To be taken only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit.

Civil Engineering

CIE 402 - Introduction to Civil Engineering

Credits: 3.00

Introduction to the civil engineering profession: structural, geotechnical, water resources, materials, and environmental. Overviews the civil project process including the creative design process, teamwork, bidding and construction. The relationship between civil engineering works and society including ethics, earthquakes, failures, successful signature structures, current events, and professional licensure. The production of professional engineering documents including writing tasks and calculations sets. Campus resources, the University system, and relationship between required curriculum, student objectives, and the civil engineering profession. Introduction to spreadsheet software, data analysis, and probability and statistics.

CIE 444 - Housing - Everyone Needs a Place to Live

Credits: 4.00

This course provides a student with the opportunity to explore the various technological, environmental, economic and societal aspects of providing housing for people in various locations around the world. Included in the course are discussions of what housing means to different people, sustainability, energy issues, etc. Students also have the opportunity to design their own house.

CIE 505 - Surveying and Mapping

Credits: 4.00

Principles of land measurements by ground, photogrammetric and satellite methods to model the environment. Application of theory of measurements to perform and adjust engineering survey. Conformal mapping and its application to state plane coordinates. Digital mapping and Geographic Information Systems. Construction and cadastral surveying. Pre- or Coreq: MATH 425 or permission. Lab. Writing intensive.

CIE 525 - Statics for Civil Engineers

Credits: 3.00

Introduction to statics with emphasis on civil engineering topics; two and three dimensional force systems; static equilibrium; friction; analysis of trusses and beams; centroids; and moment and shear diagrams for flexural members. Pre- or Coreq: MATH 426.

CIE 526 - Strength of Materials

Credits: 3.00

Strength of materials with emphasis on civil engineering applications. Virtual work; work and energy relationships; analysis of members subjected to flexure, torsion, and axial loads; stresses and strains; and stability of columns. Prereq: CIE 525 or ME 525.

CIE 533 - Project Engineering

Credits: 3.00

Techniques for financial analysis, and operation and management of engineering systems, engineering economics, material take-offs, estimating, scheduling, modeling physical systems, and decision-making. CIE/ENE major or permission.

CIE 622 - Engineering Materials

Credits: 4.00

Structural properties and applications of the various materials used in civil engineering projects, including

steel, cement, mineral aggregates, concrete, timber, and bituminous materials. Microstructure and properties of common metals, plastics, and ceramics. Prereq: CIE major or permission, CIE 526 or ME 526. Lab. Writing intensive.

CIE #627 - Dynamics

Credits: 3.00

Particle and rigid body dynamics. Topics include dynamic equilibrium, work and energy relationships, momentum, impulse, and impact; rotational and translational interactions, and friction. Introduction to vibrations and their application to structural dynamics and geotechnical engineering. Prereq: CIE 525 or ME 525, or permission.

CIE 642 - Fluid Mechanics

Credits: 4.00

Properties of fluids, fluid statics, continuity, momentum and energy equations, resistance to flow, boundary layer theory, flow in open channels and piping systems, dimensional analysis, similitude, drag, and lift. Laboratory exercises on measurement of fluid properties, energy principles, flow resistance, discharge measurements, momentum, hydropower, groundwater flow, and settling of spheres. Prereq: PHYS 407, CIE/ENE Hydrology major; or permission. Lab. Writing intensive.

CIE 665 - Soil Mechanics

Credits: 4.00

Soil classification and physical properties. Permeability, compressibility, consolidation, and shearing resistance are related to the behavior of soils subjected to various loading conditions. Prereq: CIE 622, 642, CIE/ENE major; or permission. Lab.

CIE 681 - Classical Structural Analysis

Credits: 3.00

Analytical stress and deflection analysis of determinate and indeterminate structures under static and moving loads by classical methods. Prereq: CIE 526, CIE major; or permission.

CIE 721 - Pavement Design

Credits: 3.00

Flexible and rigid pavements and bases for highways, airports, city streets, and industrial floors; pavement selection, construction methods, materials, specifications. Prereq: CIE 665 or permission.

CIE 722 - Properties and Production of Concrete

Credits: 3.00

Basic properties of hydraulic cements and mineral aggregates, and their interactions in the properties of plastic and hardened concrete; modifications through admixtures; production handling and placement problems; specifications; quality control and acceptance testing; lightweight, heavyweight, and other special concretes. Prereq: CIE 622 or permission.

CIE 723 - Bituminous Materials and Mixtures

Credits: 3.00

Considerations of major types of bituminous materials, asphalt cements, cutback asphalts, asphalt emulsions, and tars; influence of chemical composition on physical properties; desirable aggregate characteristics for bituminous mixtures; construction techniques; current practices for determining optimum asphalt contents. Prereq: CIE 622 or permission.

CIE #741 - Open Channel Flow

Credits: 3.00

Energy and momentum principles in open channel flow; flow resistance; channel controls and transitions;

unsteady flow concepts and dam failure studies. Modeling with HEC programs. Prereq: CIE 642 or permission.

CIE 745 - Engineering Hydrology

Credits: 3.00

Hydrologic cycle, probability theory related to hydrology and the design of water resources structures, water law, flood discharge prediction, hydrograph development, hydraulic and hydrologic river routing, reservoir routing, theory of storage, reservoir operations, hydropower development, modeling of watershed hydrology with program HEC-1, HEC-HMS, multipurpose projects.

CIE 750 - Ecohydrology

Credits: 3.00

Introduction to ecohydrological concepts in terrestrial and riverine systems. Topics include the historical practices, resource management impacts, hydrologic variability, and the relationships among water and ecology, vegetation, biology, geomorphology, and water quality. Prereq: CIE 745 or ESCI 705 or permission.

CIE 754 - Transportation Engineering and Planning

Credits: 3.00

Fundamental relationships of traffic speed, density, and flow applied to public and private modes of transport. Principles of demand forecasting and urban systems planning. Prereq: permission.

CIE 755 - Design of Pressurized Water Transmission Systems

Credits: 4.00

Theory developed for individual components to large complex systems. Analysis and designs of components and systems. Topics include: steady and unsteady closed conduit flow, valves and meters, pump requirements, pump selection, system planning and layout, water hammer, and system operation and maintenance. Pressure system modeling with program EPANET. Prereq: CIE 642 or permission.

CIE 757 - Coastal Engineering and Processes

Credits: 3.00

Introduction to small amplitude and finite amplitude wave theories. Wave forecasting by significant wave and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave-structure interaction. Design of coastal structures. Introduction to mathematical and physical modeling. Prereq: CIE 642 or permission.

CIE 758 - Stormwater Management Designs

Credits: 3.00

Historic review of stormwater management leading up to the current regulatory framework. Overview of stormwater management strategies, strategy selection, and the targeting of specific contaminants, contaminant removal efficiencies, construction and site selection, and system maintenance. Hydrologic concepts including watershed and storm characteristics, design hydrology (peak flows, storm and treatment volumes), hydrograph routing, and critical review of hydrology and drainage reports. Design and sizing of treatment systems including: conventional, BMPs, low impact development, and manufactured devices. Rainfall runoff calculations with US SCS TR55 model. Prereq: CIE 642 or permission.

CIE 759 - Stream Restoration

Credits: 3.00

The assessment, planning, design, engineering, and monitoring of stream and watershed practices intended to protect and restore the quality and quantity of flowing surface waters and stream corridors. Lecture material covers hydrology, geomorphology, and ecosystems, with the intent of understanding the variables associated with stream systems and their interplay. Students measure field variables and then

are challenged with actual designs. Examples of stream restoration issues include: in-stream flow, dam removal, induced recharge, improvements to fish habitat, and channel stabilization.

CIE 760 - Foundation Design I

Credits: 4.00

Foundation design based on subsurface investigation and characterization using current methods of laboratory and in situ testing. Use of consolidation theory and bearing capacity theory for the design of shallow foundations including footings and rafts. Basic design of pile foundations. Earth pressure theory applied to design of retaining walls. Slope stability theory and applications. Prereq: CIE 665 or permission.

CIE 761 - Foundation Design II

Credits: 3.00

Advanced pile and pier design under vertical and lateral loads. Slope stability by circular and noncircular arc methods. Design of flexible bulkhead walls and mechanically stabilized walls. Excavation and dewatering. Soil and site improvement. Prereq: CIE 760 or permission.

CIE 762 - Introduction to Geotechnical Earthquake Engineering

Credits: 3.00

Overviews earthquake source mechanisms; magnitude and intensity; seismicity of the United States. Dynamics of simple structures; response spectra. Selection of design parameters; source, magnitude, input records. Measurement of dynamic characteristics of soils; site response, liquefaction, and ground deformation. Prereq: CIE 760 or permission.

CIE 763 - Geological Engineering

Credits: 3.00

Functional classification of rocks and rock masses, stereographic projection, engineering properties of rocks, and rock mechanics. The influence of geology in the design of underground excavations, tunneling, foundations, and rock slope engineering. Prereq: ESCI 401 or permission.

CIE 766 - Geo-Environmental Engineering

Credits: 3.00

Soil composition and structure; hydrogeology; attenuation and contaminant transport; containment design including landfills, geo-synthetics for liners and covers, leachate collection systems, vertical cutoff walls and stability analyses; geo-environmental site characterization and investigation using geotechnical and geophysical methods; ground water, soil and gas monitoring and sampling; remediation including in situ and ex situ techniques and treatment methods. Prereq: CIE 665 or permission.

CIE 774 - Reinforced Concrete Design

Credits: 4.00

Introduces the design of reinforced concrete structural members by the strength method and considering deflection performance. Includes loads, approximate analyses, slabs, beams, and columns. Prereq: CIE 622, 681; or permission.

CIE 778 - Issues in Engineering Practice and Management

Credits: 3.00

Non-technical professional engineering topics including: participation in multidisciplinary teams, interpersonal and human resources skills, verbal and written communication skills, project management, marketing, ethics, professional licensure, professional liability, and contract administration. Prereq: seniors only; juniors with permission.

CIE 782 - Timber Design

Credits: 3.00

Introduces the design of timber structures. Structural properties of wood, determination of horizontal and vertical loads, horizontal and vertical load-resisting systems, and design of horizontal diaphragms, shear walls, beams, and columns. Bolted, screwed, and nailed connections. Prereq: CIE 681 or permission.

CIE 783 - Matrix Structural Analysis and Modeling

Credits: 3.00

Modeling and analysis of determinate and indeterminate structures by matrix computer methods. Creation of matrix elements using compatibility, equilibrium, and constitutive relationships. Plane trusses, beams, frames, and space trusses. Prereq: CIE 681 or permission.

CIE 784 - Introduction to Project Planning and Design

Credits: 1.00

Part one of a two-part sequence. Student groups develop a project statement to address a large-scale civil engineering system design. Each team prepares a project plan to be executed in CIE 788, part two of this sequence.

CIE #785 - Introduction to Structural Vibrations

Credits: 3.00

Dynamic analysis of single- and multi-degree-of-freedom systems. Simple beam and frame structures. Earthquake analysis and design. Pre- or coreq: CIE 783.

CIE 787 - Dynamics of Structures

Credits: 3.00

Dynamics of single- and multi-story buildings. Response due to earthquakes, blasting, traffic, and mechanical equipment. Analysis in the time domain and through the Fourier Transform. Fundamentals of structural vibration measurement. Prereq: CIE 785 or permission.

CIE 788 - Project Planning and Design

Credits: 3.00

Student groups are formed into design teams to prepare a design plan for a large-scale civil engineering system including consideration of budgetary constraints, building code criteria, and environmental impacts. Each team prepares a final written report and gives a formal presentation. Prereq: CIE 784. Writing intensive.

CIE 791 - Pre-stressed Concrete

Credits: 3.00

Analysis and design of prestressed and post-tensioned concrete sections in flexure and shear. Strength, deflection, and losses in flexural members. Optimization of section and prestressing force selection. Prereq: CIE 774 or permission.

CIE 792 - LRFD Bridge Design

Credits: 3.00

AASHTO LRFD Bridge Design Specifications using SI units. Design objectives, loads, load case analysis and selection, load distributions, static analysis, and design for axial loads, flexure, and shear. Design of slender columns, composite, beams, and plate girders. Prereq: CIE 774. Pre- or Coreq: CIE 793 or permission.

Co-requisites:

CIE 793 - Structural Design in Steel

Credits: 3.00

Design of members and connections: tension and compression members, beams, and beam/columns, bolted and welded joints. Prereq: CIE 622, 681; or permission.

CIE 795 - Independent Study**Credits:** 1.00 to 4.00

Seniors in good standing may pursue independent studies under faculty guidance. A written culminating report is required. Prereq: permission.

CIE 796 - Special Topics**Credits:** 1.00 to 4.00

Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission.

CIE 799H - Senior Honors Thesis**Credits:** 4.00

Students in the honors program in civil engineering complete a project under the direction of a faculty sponsor resulting in a written thesis which must be accepted by the sponsor by the end of the second semester, senior year. Four credits total during senior year; 3 of which may be used to fulfill a CIE non-design elective.

Civil Technology

CT 220 - Professional Practice

Credits: 1.00

Serves as an introduction to the civil technology program and various fields in the civil environment in a seminar format. Provides for student contact with industry professionals and employment opportunities. Assists with student learning skills and serves as common period for Freshmen guidance on academic matters. 2-hr sem.

CT 222 - Computer Aided Design Level I

Credits: 4.00

The student designs fundamental design project work including site work and buildings, prepares plans using computer software (AutoCAD). Emphasis is on learning the software, basic design and plan requirements. Students then apply this knowledge to produce presentation drawings and develop proficient skills with this software. The student also works concurrently on course projects. 2-hr lec/2-hr rec.

CT 223 - Introduction to Surveying and Mapping

Credits: 3.00

An introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.

Co-requisites: CT 224

CT 224 - Surveying and Mapping Applications

Credits: 2.00

A series of labs and recitations that provide an introduction to the field of surveying and mapping and its fundamental principles, theories and methods. Specifically: horizontal and vertical distance measurements, angle and direction measurements, determination of positions, areas and topographic contours. Includes mapping, geographic information systems and the Global Positioning System, measurement accuracy, and statistical analysis.

Co-requisites: CT 223

CT 227 - Mechanical and Electrical Systems

Credits: 4.00

Description, analysis and design application of conventional heating, ventilating, air conditioning, lighting and plumbing systems for residences. Electrical principles, laws, and installation with emphasis on the National Electrical Code. 2-hr lec/2-hr rec.

CT 230 - Statics and Materials

Credits: 4.00

Determining and evaluating physical properties of common building construction materials: wood, steel and non-ferrous metals, cement, concrete, brick, and bituminous materials. Application of materials to design of structural elements in beam and column applications, under various load conditions. Emphasis on appropriate material selection and optimization of design. Prereq: MTH 203. 2-hr lec/2-hr rec.

CT 231 - Design I

Credits: 4.00

Provides foundational skills in critical thinking, design process, verbal and graphic description/idea

documentation, project implementation, and creative process activation. Presentation and demonstration skills to be developed as part of individual and group project solutions. Course develops 3D CAD skills. Prereq: CT 222. 2-hr lec/2-hr rec.

CT 233 - Construction Surveying

Credits: 4.00

This course applies methods and techniques learned in CT 223 to real world situations. The student works as part of a project team on a proposed construction site. Tasks and materials covered include: setting control, mapping of sites, design and layout of roadways, site planning, building and infrastructure layout, area and volume calculations. Class expands on use of survey equipment to include data collectors and land design computer software. Prereq: CT 223 with a grade of C- or better. 2-hr lec/1-hr rec/2-hr lab.

CT 234 - Soils and Foundations

Credits: 4.00

Subsurface exploration, soil sampling, testing and evaluating subsurface materials, and their effect on foundations, site development, and construction. Hands-on laboratory component. Introduction to site excavation methods and foundation design. 2-hr rec/2-hr lab/rec.

CT 235 - Introduction to Information Technology

Credits: 4.00

This course will provide an introduction to Information Technology and the issues and challenges with managing the computing enterprise in a corporate environment. Topics to be covered include hardware troubleshooting and repair, operating system fundamentals, general application deployment, data communications, networking software and hardware, server security and management, and an introduction to HTML (web site) programming. Prereq: AM 280, MTH 203. 2 lec/1 lab

CT 237 - Land Design and Regulations

Credits: 4.00

Hydrology of drainage and storm water runoff, basic concepts of hydraulic flow in pipes and channels, and overview of pump systems. Technical and regulatory requirements of designing residential water supply and septic disposal systems. Review of federal, state, and local ordinances with respect to construction and land development. 2-hr lec/2-hr rec.

CT 240 - Legal Aspects of Surveying

Credits: 3.00

The legal issues involved when performing a property boundary survey are presented. Ownership of land, the search for boundary evidence, methods of performing research and resolving conflicting information and disputes are discussed. Other topics include: An introduction to legal principles, statutes, case law, terminology, liability, ethics and standards relating to surveying. A course-long project is undertaken whereby research, the search for evidence, a field survey, boundary determination and a plat are completed. Prereq: CT 223 with a grade of C- or better. 2-hr lec/1-hr rec.

CT 243 - Advanced Surveying and Mapping

Credits: 3.00

A continuation of surveying topics not covered in CT 223, CT 233 and 240. Specifically: Geodesy, Map Projection Systems, State Plane Coordinates, Control Surveys, Satellite Positioning, Astronomic Observations, Equipment Testing and Adjustment and Theory of Observations. 2-hr lec/2-hr lab.

CT 244 - Advanced Surveying Computations

Credits: 4.00

Emphasis on how to perform the typical surveying computations encountered in the field. Use of surveying and mapping software and plotters for topographic mapping and subdivision design. Advanced GIS theory

and applications including Photogrammetry and Remote Sensing. Field equipment testing and adjustment. Prereq: CT 223, 233, 243, or permission. 3-hr lec/2-hr lab.

CT 247 - Construction Contracting

Credits: 4.00

Overview of administrative skills required to manage a construction concern. Emphasis on project management through the entire construction and design process. Building codes and the ADA code included. 2-hr lec/2-hr rec.

CT 281 - Architecture I History and Design

Credits: 4.00

Develops a basic understanding of American residential architectural history while developing architectural programming and design skills in a project based environment. Moderate CAD usage for project submissions 2-hr lec/2-hr rec.

CT 282 - Architecture II

Credits: 4.00

Studio application of principles and skills developed in the architectural concentration. Design of a complete shelter system into the design development phase. Prereq: CT 281. 2-hr lec/2-hr rec.

CT 291 - Studies

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples may include energy conservation, surveying, construction, or hydrographic surveying.

CT 292 - Studies

Credits: 1.00 to 4.00

See description for CT 291.

CT 297 - Work Experience

Credits:

Career-oriented work experience (10 weeks, full time) to include, but not limited to, architecture, construction, surveying, and mapping. Cr/F.

Classics

CLAS 400 - Grammar for Students of Latin and Greek

Credits: 1.00

A one-semester review in English grammar from a traditional perspective provides a background in grammatical concepts for those students who have never studied a Classical language or who need review. Weekly meetings introduce topics; readings and assignments reinforce them. Enrollment is limited to students enrolled in LATN 401, 402, 501, 502, or GREK 401, 402. Course does not count toward Classics, Latin, or Greek major or minor requirements. May be repeated for up to 2 credits. Cr/F.

CLAS 401 - Classical Mythology

Credits: 4.00

Survey of myths and sagas of ancient Greece and Rome. No classical preparation necessary. Background course for majors in English, the arts, music, history, modern languages, classics. Special fee.

CLAS 401H - Honors/Classical Mythology

Credits: 4.00

See description for CLAS 401. Writing intensive.

CLAS 405 - Introduction to Greek Civilization

Credits: 4.00

A broad historical exploration of Greek civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and their legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages. Special fee.

CLAS 406 - Introduction to Roman Civilization

Credits: 4.00

A broad historical exploration of Roman civilization. Topics include: architecture, art, law, literature, philosophy, poetry, politics, religion, society, warfare, and their legacy to the modern world. Open to all students. No prior knowledge of the ancient world assumed; all readings are in English. Ideal background for students of English, philosophy, history, Latin, Greek, the arts, music, modern languages. Special fee.

CLAS #410A - Sports, Spectacle, and Competition in the Ancient World

Credits: 4.00

This course treats the details of athletic training and competition, but its primary focus is on investigating the importance of athletics to society and how athletics reflected the broader cultural values of the Greeks and Romans. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 410B - Greek and Roman Religion

Credits: 4.00

Exploration of the religious practices of the Greeks and Romans. Topics include: gods, sacrifice, rituals, sacred space, prayer, magic, curses, oracles, mystery religions, divination, and religious festivals. Particular attention paid to how religion intersected with daily life. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 410C - The Ancient Stage: Tragedy and Comedy

Credits: 4.00

Investigations into the dramatic works of the Greeks and Romans, the power of performance, and the cultural importance of stage productions. Readings include the tragedies of Aeschylus, Sophocles, and Euripides, and the comedies of Aristophanes, Menander, and Plautus. Ideal background for students of all theatrical and performance traditions. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 411 - Elementary Hittite I

Credits: 4.00

Elements of grammar, reading of simple prose. Special fee.

CLAS 412 - Elementary Hittite II

Credits: 4.00

Elements of grammar, reading of simple prose. Special fee.

CLAS 413 - Elementary Sanskrit I

Credits: 4.00

Elements of grammar, reading of simple prose. Special fee.

CLAS 414 - Elementary Sanskrit II

Credits: 4.00

Elements of grammar, reading of simple prose. Special fee.

CLAS 421 - Major Greek Authors in English

Credits: 4.00

Major classical authors such as Homer, the Tragedians of Athens, Herodotus, Thucydides, and Plato in the context of their civilization, from which so much of our contemporary culture derives. For students unprepared to read Greek. Background for majors in English, history, Latin, Greek, the arts, music, philosophy, modern languages. Open to all students. Special fee. Writing intensive.

CLAS 422 - Major Roman Authors in English

Credits: 4.00

Major classical authors such as Plautus, Terence, Cicero, Catallus, Vergil, Ovid, Seneca, Juvenal, and Tacitus in the context of their civilization, from which so much of our contemporary culture derives. For students unprepared to read Latin. Background for majors in English, philosophy, history, Latin, Greek, the arts, music, modern languages. Open to all students. Writing intensive.

CLAS #444 - Individual and Society in the Ancient World

Credits: 4.00

This class examines one of the major issues faced by people throughout history, whether and under what circumstances an individual should act against the wishes of society. The great philosophical and historical works of the ancient world shed light not only on how the Greeks and Romans approached the idea of personal responsibility but also on the assumptions we today make about human nature and the relationships on which society depends. No prior knowledge of the ancient world required. All readings are in English. Writing intensive.

CLAS 444A - Individual and Society in Ancient Drama

Credits: 4.00

An introductory investigation into the origins and development of ancient drama and its impact on European drama. Writing intensive.

CLAS 444B - Heroic Epic: From Gilgamesh to Gandalf

Credits: 4.00

An exploration of one of the oldest and most enduring of literary forms, tracing its development through thousands of years in various cultural contexts down to modern examples. Beyond that specific aim lies a broader and even more important one: to provide an introduction to the methods of literary history and criticism, that is, how we formulate and answer questions as we characterize, categorize, and analyze heroic epic. Writing intensive.

CLAS 444C - Is Winning Everything? Competition in Ancient Sports

Credits: 4.00

An investigation of the competitive nature of Greek athletics and the Roman games. Focus is on how Greek and Roman views of the value of competition reflect the differences in their histories. Particular attention paid to the types of evidence and methods used by ancient historians. Open to all students. All readings in English.

CLAS 500 - Classical Mythology: Topics in World Literature

Credits: 4.00

Topics are chosen to introduce students to major themes and genres. (Also offered as FREN 500, GERM 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Writing intensive.

CLAS 506 - Introduction to Comparative and Historical Linguistics

Credits: 4.00

Major language families (primarily Indo-European) and the relationships among the languages within a family. Diachronic studies, methods of writing, linguistic change, glottochronology, etymological studies. Some language training and LING 505 desirable. (Also offered as LING 506.)

CLAS 510 - Building Rome

Credits: 4.00

An introduction to the buildings and structures for which the Romans remain famous, such as the Pantheon, the Colosseum, and the aqueducts that allowed Rome to become a metropolis. A major focus is the connection between the changes in Roman society and the development of Roman architecture. Looks at both Rome and other important cities in the Roman Empire. All readings are in English. No prior knowledge of the ancient world required.

CLAS 520 - Greek and Roman Religion

Credits: 4.00

Exploration of the religious practices of the Greeks and Romans. Topics include: gods, sacrifice, rituals, sacred space, prayer, magic, curses, oracles, mystery religions, divination, and religious festivals. Particular attention paid to how religion intersected with daily life. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 525 - Greek and Latin Origins of Medical Terms

Credits: 4.00

Study of medical terminology. Exercises in etymology and the development of vocabulary in a context at once scientific, historical, and cultural. No knowledge of Greek or Latin is required. Useful to premedical, pre-dental, pre-veterinary, nursing, medical technology, and other students in the biological and physical sciences. Open to all students. Special fee.

CLAS 530 - The Ancient Stage: Tragedy and Comedy

Credits: 4.00

Investigations into the dramatic works of the Greeks and Romans, the power of performance, and the

cultural importance of stage productions. Readings include the tragedies of Aeschylus, Sophocles, and Euripides, and the comedies of Aristophanes, Menander, and Plautus. Ideal background for students of all theatrical and performance traditions. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 550 - Women in Antiquity

Credits: 4.00

The impact of women on society in Greece and Rome throughout Antiquity. The role of women in public, religious, and private life as well as their legal status through law codes. Men's views of women in different literary texts. Especially concentrating on the few existing texts written by women. All readings are in English. No prerequisite. Special fee. Writing intensive.

CLAS 560 - Sports, Spectacle, and Competition in the Ancient World

Credits: 4.00

This course treats the details of athletic training and competition, but its primary focus is on investigating the importance of athletics to society and how athletics reflected the broader cultural values of the Greeks and Romans. Open to all students. All readings in English. Students who have previously taken CLAS 402 cannot receive credit for CLAS 410A, although they may receive credit for CLAS 410B and CLAS 410C. Special fee.

CLAS 595 - Topics

Credits: 4.00

Introduction and elementary study related to linguistic study of Latin and Greek or relevant to Greco-Roman culture and history. Primarily for students unprepared to read Latin and Greek. Topics: A) Byzantine Heritage; B) Grammar: Comparative Study of English and the Classical Languages; C) Greek and Latin Origins of Legal Terms; D) Greek and Latin Origins within the English Language; E) Classical Backgrounds of Modern Literature; F) Classical Archaeology.

CLAS 596 - Topics

Credits: 4.00

See description for CLAS 595.

CLAS 604 - Golden Age of Rome

Credits: 4.00

A study of the early Roman Empire as created by Augustus and his immediate successors; glorified by Vergil, Horace, and the poets of the Golden Age; and described by Tacitus, Suetonius, and the prose writers of the Silver Age. Open to all students. Prereq: any CLAS course or permission of instructor. Writing intensive.

CLAS 694 - Supervised Practicum

Credits: 2.00 or 4.00

Participants earn credit for suitable pre-professional activities, including high school outreach, assisting in undergraduate courses and work with professional organizations, museum work. Enrollment limited to juniors and seniors who are Classics, Latin, or Greek majors or minors and have above-average G.P.A.s. Writing assignments are required. Prereq: permission of instructor and program coordinator. Course does not count toward Classics, Latin, or Greek major or minor requirements. May be repeated up to a maximum of 8 credits. Cr/F.

CLAS 695 - Special Studies

Credits: 2.00 or 4.00

Advanced work in classics. Research paper. Not open to freshmen and sophomores.

CLAS 696 - Special Studies

Credits: 2.00 or 4.00

See description for CLAS 695. Special fee.

Communication

CMN 444 - Going to War at the Movies: A Rhetorical History of War Films

Credits: 4.00

This course introduces students to a rhetorical approach to the study of film, an understanding of how films act as both producers and products of social discourse. The course features mainstream war films throughout the past century and students will engage multiple perspectives to investigate the diverse ways that films invite audiences to make meaning, including ideological critiques (race, class, gender), political economic considerations, auteur theory, historical, formal, structural, and genre analysis, and mythic criticism. Writing intensive.

CMN 455 - Introduction to Media Studies

Credits: 4.00

Nature, development, and the effects of mass media. Overview of mass communication history and theory.

CMN 455H - Honors/Introduction to Mass Communication

Credits: 4.00

See description for CMN 455.

CMN 456 - Propaganda and Persuasion

Credits: 4.00

Introduction to theories of propaganda and persuasion. Examination of symbolic strategies designed to secure or resist social and institutional change. Attention given to case studies of social, political, economic, and religious reformation. Special consideration of the ethical ramifications of such efforts.

CMN 456H - Honors/Propaganda and Persuasion

Credits: 4.00

See description for CMN 456.

CMN 457 - Introduction to Interpersonal Communication

Credits: 4.00

An introduction to the study of the conversational basis of social reality. Presents an overview of interpersonal communication processes and the ways in which they influence the formation of identity, personal relationships, gender, interactional patterns, conflict, culture, and power. Readings and class material from a variety of authors in the communication discipline as well as related fields in the humanities and the social sciences.

CMN 500 - Public Speaking

Credits: 4.00

Performance course buttressed by practical theories of public discourse. Focus on analysis of speaking situations and audiences, message construction, presentation, and critical evaluation. Does not count towards the CMN major.

CMN 503 - Introduction to Group Communication Processes

Credits: 4.00

Introduction to the theoretical and empirical foundations of group communication processes in a variety of settings. Comparison of approaches to defining and understanding the pervasiveness, complexity, and diversity of group communication and multi-party interaction in the many spheres of social life. Students undertake hands-on observation, recording, transcription, and analysis of naturally occurring group

communication in and out of class. Prereq: CMN 457 with C or better, or by permission.

CMN 504 - Introduction to Argumentation

Credits: 4.00

Persuasive discourse as inquiry and advocacy grounded in practical inductive and deductive reasoning. Discovery, analysis, and testing of practical arguments. The nature and function of proof. Some emphasis on applied presentation. Prereq: CMN 456 with C or better, or by permission. Writing intensive.

CMN 505 - Analysis of Popular Culture

Credits: 4.00

Locates the development of popular cultural artifacts and practices within the 20th-century social history of the U.S. Examines the political-economic forces that underpinned the commercialization of art, leisure, sports, and other elements of culture in industrial and postindustrial America. Prereq: CMN 455 with C or better, or by permission.

CMN 507 - Introduction to Rhetorical Theory and Analysis

Credits: 4.00

Major precepts of rhetorical theory. Application of those precepts in analysis and understanding of a wide range of human communication. Consideration of how precepts and issues of rhetorical theory apply to contemporary issues and problems. Prereq: CMN 456 with C or better, or by permission.

CMN 515 - Analysis of News

Credits: 4.00

Explores the psychological, social, economic, political, and cultural factors that influence the definition and reporting of news. Prereq: CMN 455 with C or better, or by permission.

CMN 519 - Advertising as Social Communication

Credits: 4.00

Social role of advertising, public policy debates concerning advertising, influence of advertising on culture, and methods of analyzing advertising messages. Prereq: CMN 455 with C or better, or by permission.

CMN 550 - Cinema and Society

Credits: 4.00

The art, history, technology, economics, and theory of moving images from the silent period to the present. Focus on film as a social practice. Examination of both classic Hollywood film and alternative cinema. Students cannot receive credit for both CMN 550 and ENGL 533. Prereq: CMN 455 with C or better, or by permission. Special fee.

CMN 556 - Persuasion and Public Problems

Credits: 4.00

Examination of communication about public problems using major precepts from classical and contemporary rhetorical theory. Application of those precepts discloses how persuasive communication frames public problems and constrains responses to them. By the end of the course students will know how to conduct a rhetorical analysis of public discourse and how to use results from that analysis to criticize, improve, or participate in deliberations about public problems. Prereq: CMN 456. Writing intensive.

CMN 567 - Gender, Race, and Class in the Media

Credits: 4.00

The purpose of this course is to introduce students to contemporary critical scholarship on the construction of gender, race, and class in the media - particularly popular media. Subjects such as the portrayal of ethnic groups, ideal body image, blue collar men, and gay, lesbian, bisexual, and transgender groups are case studies. This course is one that introduces students to performing communication analysis. Prereq:

CMN 455.

CMN 572 - Language and Social Interaction

Credits: 4.00

In this mid-level course, students develop the observational and analytic skills necessary for the in-depth study of interaction in a variety of everyday and institutional social settings. Settings may include dialogue, multiparty interaction, non-verbal communication and embodiment, identity talk, and communication in organizations. Special attention to developing the reading and research skills used in upper level interpersonal communication courses. Prereq: CMN 457 with C or better, or by permission.

CMN 575 - Research Practicum

Credits: 1.00 to 4.00

Student engagement through direct participation in faculty research projects. Elective credits which do not count towards the major. Instructor permission required. May be repeated for a maximum of 8 credits. Prereq: CMN 455, 456, 457, and permission. Cr/F.

CMN 588 - Talk and Social Institutions

Credits: 4.00

Examinations of institutional interactions in emergency services, justice/law, medicine, journalism, politics, and encounters between school and family. Shows how the work of society gets done through interaction. Students get hands-on experience analyzing persons' conduct in these interactions. This course is designed to develop students' analytic skills in studying social interaction in institutions, using recorded data in the form of naturally-occurring interactions in these settings. Prereq: CMN 457 with a grade of C or better, or permission.

CMN 595 - Critical Cultural Rhetorics

Credits: 4.00

The course examines the prominence of and critical responses to the visual within contemporary culture and everyday life (governance, film, advertisement, digital media, culture jamming). By focusing on the reign of the visual within the contemporary moment, the course problematizes the notion of sight as unmediated access to the real, thus opening questions of interpretation, meaning production, and the effectivity of the visual. Students engage scholarship from rhetoric and visual cultural studies, and produce their own critical projects employing the critical concepts they learn throughout the semester. Prereq: CMN 456 with C or better, or by permission. Writing intensive.

CMN 596 - Special Topics in Media Studies

Credits: 4.00

Selected topics not covered by existing courses in media studies. Topics vary; course descriptions are available in department office during preregistration. May be repeated for credit if topics differ. Prereq: CMN 455 with C or better, or by permission.

CMN 597 - Special Topics in Rhetorical Studies

Credits: 4.00

Selected topics not covered by existing courses in rhetorical studies. Topics vary; course descriptions are available in department office during registration. May be repeated for credit if topics differ. Prereq: CMN 456 with C or better, or by permission.

CMN 598 - Special Topics in Interpersonal Studies

Credits: 4.00

Selected topics not covered by existing courses in interpersonal communication. Topics vary; course descriptions are available in department office during registration. May be repeated for credit if topics differ. Prereq: CMN 457 with C or better, or by permission.

CMN 599 - Internship

Credits: 1.00 to 4.00

Internships are designed to integrate classroom study and supervised practical experience in a work setting. Each student is required to write a series of reports focusing on aspects of the work experience that are related to coursework in the Communications Department. These assignments are designed to enhance a student's ability to reflect critically on the internship experience and to merge theory and practice. Assignments are available, depending on the number of credits granted (1-4). Students are expected to hold the common exam time (TR, 1240-2) open for occasional meetings. Before starting the internship, students must submit a written proposal to both the work supervisor and the faculty sponsor. The proposal should include detailed information on the duties and responsibilities to be undertaken at the internship site and on the goals and learning objectives as relevant to the Communication Department curriculum. May be repeated for a maximum of 8 credits. Prereq: CMN 455, 456, 457, or permission. Cr/F.

CMN 600 - Public Speaking as a Civic Art

Credits: 4.00

Performance course buttressed by the traditional civic art of rhetoric. Focuses on analysis of speaking situations and audiences, message of construction, presentation, and critical evaluation using major precepts of rhetorical theory. Theoretical and critical issues in the context of rhetorical practices. Prereq for CMN majors: CMN 455, 456, 457, and 500-level rhetoric course; prereq for non-majors: junior or senior standing. Writing intensive.

CMN 602 - Theories of Interpersonal Communication

Credits: 4.00

Analysis and criticism of contemporary perspectives on interpersonal communication. Theories and concepts, issues, and research models are examined as they contribute to our understanding of social interaction. Prereq: CMN 455, 456, 457 and any CMN 500-level interpersonal studies course or permission. Writing intensive.

CMN 607 - Persuasion in American Politics

Credits: 4.00

Study of the forms and strategies of persuasive discourse employed by contemporary American political leaders. Analysis of important political addresses of the 20th century, with attention to theoretical and critical issues in political communication and public address. Discussion of the status of rhetoric in modern politics, and the impact of persuasive discourse on campaigns, policy decisions, crisis management, political scandal, and the national identity. Prereq: CMN 455, 456, 457 and any 500-level rhetorical studies course or permission. Writing intensive.

CMN 615 - Public Opinion and Mass Communication

Credits: 4.00

Examines the historical development of the 18th century public sphere and its relationship to the press. Traces the transformation of the press from an ideological grounding to a commercial base. Analyzes the consequences of contemporary mass consumer-oriented media on the public sphere and democratic life. Prereq: CMN 455, 456, 457 and any 500-level media studies course. Writing intensive.

CMN 627 - Great Speakers and Speeches

Credits: 4.00

Historical and critical survey of masterpieces of oratory examining the rhetorical situation and artistic features of great works of spoken discourse. Demosthenes, Cicero, Edmund Burke, Daniel Webster, Frederick Douglass, Abraham Lincoln, and Elizabeth Cady Stanton may be among the orators studied. The course will engage students in critical assessment of eloquence by emphasizing study of historical circumstances, ethical choices, and artistic virtue of the most effective and admired public speakers in

Western tradition. Writing intensive.

CMN 630 - Psychology of Communication

Credits: 4.00

Recasts human psychology as a communicative accomplishment, offering a critique of the individualist tradition. Emphasis on the ways in which identity, knowledge, values, and beliefs are constructed in daily social engagements and the pragmatic, political, and moral implications of this view. Implications for our major cultural institutions such as education, health, and politics. Prereq: CMN 455, 456, and 457 with C or better and any required 500-level interpersonal studies course with a C- or better, or by permission. Writing intensive.

CMN 632 - Communication Theory

Credits: 4.00

Terminology, concepts, theoretical models, functions, levels, modes, and media in human communication. Prereq: CMN 455, 456, and 457 with C or better and any required 500-level CMN course with a C- or better (three required 500-level courses recommended) or by permission. Writing intensive.

CMN 634 - Media and Politics

Credits: 4.00

The goal of this course is to study the role of the media in American politics, and what media evolution means for future politics. Topics such as political campaigns, media effects, news reporting, framing terrorists, etc. are studied in depth. Timely topics such as "are the media liberal or conservative?" are debated in class. Research projects and papers study questions related to important social issues such as women in the media. Prereq: CMN 455, CMN 456, CMN 457 and two 500-level CMN courses. Writing intensive.

CMN 645 - Rhetorical Criticism of Film

Credits: 4.00

Examine the rhetoric of narrative film, with an emphasis on an audience-centered criticism of American feature films, such as historical dramas, sci-fi films, road movies, and documentaries. Also examines how audiences experience films as both products and producers of social disorder. Prereq: CMN 455, 456, 457 and one 500-level Rhetoric course or permission. Writing intensive.

CMN 650 - Critical Perspectives on Film

Credits: 4.00

Advanced, focused study of film theory as cultural practice. Topics vary from year to year and with instructor. May be repeated for different topics. Focus may range from general considerations of film theory, criticism, and history, to specific analyses of selected genres, directors, national cinemas, and periods. Course descriptions available in department office during preregistration. Prereq: CMN 455, 456, 457, 550, ENGL 533, or permission. Special fee. Writing intensive. May be repeated for credit.

CMN 666 - Conversation Analysis

Credits: 4.00

Exploration in how participants in interpersonal communication display their orientation to the fundamental orderliness of conversational sequences in everyday, institutional, and mass media settings. Basic concepts covered include the interactional co-construction of turn-taking, repair, overlap, openings, closings, silences, adjacency, pairs, disagreement, preference, and the role of various linguistic, paralinguistic, and nonlinguistic features in the conversation process. Prereq: CMN 455, 456, 457 and one 500-level interpersonal CMN course or permission. Writing intensive.

CMN 680 - Perspectives on Culture and Communication

Credits: 4.00

Critical interpretation of culture focused on the communication practices and resources of diverse groups. Examination of the reciprocal relationship between communication practices, forms of culture, and cultural identity. Exploration of the conditions necessary for dialogue between differing cultural groups. Emphasis on the role of communication in constructing race, power, cultural domination, and globalization. Prereq: CMN 455, 456, and 457 with C or better and any required 500-level interpersonal studies course with a C- or better, or by permission. Writing intensive.

CMN 696 - Seminar in Media Studies

Credits: 4.00

Variable topics in media research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, 456, 457 and any 500-level media studies course or permission. Writing intensive.

CMN 697 - Seminar in Rhetorical Study

Credits: 4.00

Variable topics in rhetorical research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, 456, 457 and any 500-level rhetorical studies course or permission. Writing intensive.

CMN 697H - Honors/Seminar in Rhetorical Study

Credits: 4.00

See description for CMN 697. Writing intensive.

CMN 698 - Seminar Interpersonal Studies

Credits: 4.00

Variable topics in interpersonal research, theory, and practice. May be repeated for different topics. Topic descriptions available in department office during preregistration. Prereq: CMN 455, 456, 457 and any 500-level interpersonal studies course or permission. Writing intensive.

CMN 702 - Seminar in Interpersonal Communication Theory

Credits: 4.00

In-depth concentration on a particular theoretical orientation in interpersonal communication. Original works are read. Theoretical orientation varies by semester. Prereq: CMN 455, 456, and 457 with C or better and three required 500-level CMN courses (at least one must be in interpersonal studies) with C- or better, or by permission. Writing intensive.

CMN 703 - Seminar in Rhetorical Theory

Credits: 4.00

Focused study of problems in rhetorical theory construction through examination and criticism of selected theoretical frameworks used to explain or interpret rhetorical phenomena. Prereq: permission. Writing intensive.

CMN 730 - Family Communication

Credits: 4.00

Exploration of the patterned communication in families and the ways in which our understanding of these patterns can be utilized to understand and transform unwanted family interactions. Varying cultural discourses of family communication are used to explore the dialogic construction of family and self. Prereq: CMN 455, CMN 456, CMN 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 732 - Communication Theory

Credits: 4.00

Terminology, concepts, theoretical models, functions, levels, modes, and media in human communication.

Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 737 - Principles of Rhetorical Crit

Credits: 4.00

Application of critical principles to message evaluation. Consideration of the varying roles, methods, and standards of rhetorical critics. Special attention to major perspectives on rhetorical criticism including Neo-Aristotelian, historical, dramatistic, generic, literary, and psychological. Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 742 - Dialogue and Teamwork

Credits: 4.00

This course is about team building, alternative conflict resolution, and creative problem solving. We will explore the idea that, contrary to prevailing cultural assumptions, a significant factor in our achievements at work and play can be traced not to our individual attributes but rather to the relationships that we develop in our conversations with others. We will examine the dialogic basis of these relationships, drawing on a range of philosophic traditions and practical activities that highlight the social basis of thought. Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 755 - Communication and Healthcare

Credits: 4.00

Exploration of the cultural discourse of healthcare from many different vantage points (i.e., physician, psychiatrist, patient, family, friend, colleague, government, culture, institutions, etc.) Examination of both constraining and generative forms of discourse as they directly affect health, institutional life, and issues of well-being. Course focuses on narrative and interactional approaches to medicine and healthcare. Consideration of what it means to be "sick" or "well;" what constitutes "illness," "pain," and "cure;" and how being categorized as sick impacts the self and our interactions with others. Also examines the role of expertise and power in medical practitioner-patient interactions and the social norms that shape and constrain medical conduct. Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 756 - Rhetorics of Display

Credits: 4.00

This course examines a selection of displays with the goal of acquiring perspective for understanding and evaluating how they engage with people who come into contact with them. Displays examined range among oratory, photographs, advertisements, films, architecture, monuments, and statuary, public demonstrations, and presentations of self. Attention is given to questions about identity and belonging, authenticity and simulation, and public memory. Prereq: CMN 455, 456, 457, and two 500-level courses, or permission. Writing intensive.

CMN 757 - Public Address and the American Experience

Credits: 4.00

Study of persuasive texts set firmly in their historical and social contexts. Discussion of the impact of popular discourse on historically significant political and social events. Analysis of how leading persuasive speakers and writers responded to the fundamental questions confronting their age and articulated ideas in a manner that provoked or motivated their community, state, or nation. Historical period studied will vary. May be repeated for credit to a maximum of 12 credits when topic varies. Prereq: CMN 455, 456, 457 and two 500-level CMN course or permission. Special fee. Writing intensive.

CMN 758 - Media Analysis and Criticism

Credits: 4.00

Approaches and methodologies for media criticism. Analysis of sample studies. Students work on original media analysis projects. Prereq: CMN 455, 456, 457 and any two 500-level CMN courses, or permission.

Writing intensive.

CMN 760 - Mediation

Credits: 4.00

This course will explore different theories and models of mediation as they inform the broader topic of conflict resolution. Emphasis will be on models that examine relational processes as opposed to models that provide a list of skills or techniques for mediation. To that end, the course will focus on transformative dialogue as a mode of mediation and conflict resolution rather than on compromise or consensus models. Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 765 - Police Talk

Credits: 4.00

How do police get people to comply with a communicative action? How do they ask questions to investigate, to problem-solve, and to get a confession during an interrogation? How do citizens resist or cooperate with police action? This course examines questions such as these to understand basic communication processes, and how these processes are utilized in talk-in-interaction between police and citizens. This is a hands-on research methods course that instructs students in the methodology of video analysis, and has students pursue their own research projects in the content area of police-citizen interaction. Prereq: CMN 455, 456, 457, and two 500-level CMN courses, or permission. Writing intensive.

CMN 772 - Seminar in Media Theory

Credits: 4.00

Detailed analysis of major theories related to the interaction of communication technologies and society. Application to current examples in politics, advertising, and entertainment. Prereq: at least one 600-level course or permission. Writing intensive.

CMN 795 - Independent Study

Credits: 1.00 to 4.00

Advanced individual study in rhetoric, media, or interpersonal communication. Project to be developed with supervising instructor. May be repeated up to a maximum of 8 credits. Prereq: permission.

CMN 795W - Independent Study

Credits: 1.00 to 4.00

See description for CMN 795. Permission required. Writing intensive.

CMN 796 - Comm-Entary Journal

Credits: 1.00

Serve on the editorial board of student run communication journal. Elective credit which does not count toward the major. May be repeated for a maximum of 2 credits. Prereq: CMN 455, 456, 457, or permission. Cr/F.

CMN 799H - Honors Thesis

Credits: 4.00

Written thesis based on substantial and original research under the direction of a full-time member of the communication faculty. Thesis must be in the form and style of a publishable, scholarly work. Restricted to seniors seeking honors in major.

Communication Arts

CA #444 - Manipulating Media: Exploring Image and Sound Aesthetics

Credits: 4.00

An introductory exploration of moving image and sound with an emphasis on discovering how aesthetic choices impact media messages. Students investigate aesthetic principles by finding, making, and working with digital media, animation, video, audio, and film. This is not a production class, but rudimentary, hands-on production is taught. No credit earned if credit received for CA 502. Special fee.

CA 450 - Introduction to Public Speaking

Credits: 4.00

Theories of rhetoric applied to the practice of speech composition, oral performance, and critical evaluation. Focus on student speeches for a variety of situations and audiences. Not for credit if credit earned for CMN 500.

CA 500 - Media Writing

Credits: 4.00

An introduction to business, creative and freelance writing for a variety of media. Writing, editing and rewriting in areas such as video scripts, short magazine articles, audio scripts, ads, press releases, news, short one-act plays, blogs and more. Prereq: ENG 401.

CA 501 - Internship/Communication in the Urban Community

Credits: 1.00 to 4.00

Field-based learning experiences. Connects students to the urban community and integrates their classroom education within a business or organizational setting. Students work under the direction of a faculty advisor and workplace supervisor to fulfill the obligations of the workplace internship plan and to complete individually-designed academic projects. Projects must be approved in advance by the faculty advisor. Open to matriculated students with a GPA of 2.50 or better and junior standing. Permission of instructor required. May be repeated for up to 8 credits, with 4 credits maximum accepted toward satisfaction of requirements for the CA major. Cr/F.

CA 502 - Image and Sound

Credits: 4.00

Image and Sound is a foundation course in the aesthetics of motion picture and sound production. This course explores the aesthetic principles that are used to communicate stories, emotions and messages in popular media. Students will study film, television and new media and survey production methods. This is not a production course per se, but is particularly helpful to students interested in video and film production. No credit for students who have completed CA 444.

CA #503 - Techniques for News Reporting

Credits: 4.00

Focuses on the essential elements of fact-based reporting and discussion of the principles and ethics of independent journalism. Techniques include determining the different perspectives and voices that belong in a story, developing research skills for locating information, strategies for reconciling conflicting information, and procedures for effective interviewing. Prereq: ENGL 401 plus CMN 455; or permission.

CA 504 - Film Criticism

Credits: 4.00

An introduction to the practice of film criticism. Critique of film as both art form and medium of

communication. Examines the process of film production, basic principles of film form, techniques of film style, and major approaches to film criticism. Prereq: ENGL 401 and CMN 455 or permission. Special fee.

CA 506 - Gender

Credits: 4.00

How gender is created, maintained, repaired, and transformed through communication in particular historical, cultural, and relational contexts. Examines a variety of topics including the relationship between sex and gender, language, cultural mythologies, identity, health care, sexuality, and strategies for resisting conventional gender definitions. Prereq: CMN 457 or permission.

CA 508 - Conflict in Relational Communication

Credits: 4.00

Introduces communication theories relevant to the study of conflict interaction in interpersonal relationships. Considers interpersonal concerns contributing to conflict such as power, face-saving, and goals. Examines behaviors that affect our ability to resolve conflict, and strategies, such as mediation, to resolve conflict. Develops the ability to diagnose productive and destructive conflict patterns in relationships. The course is both theoretical and practical in orientation. A combination of lecture, discussion, case studies, and in-class group assignments are employed. Prereq: CMN 457.

CA #510 - Language and Interaction

Credits: 4.00

Examines how identities, relationships, and social realities are constituted through language and interaction. Specific topics include perception, meaning, metaphor, power, gender, illness, and the environment. Prereq: CMN 457 or permission.

CA 512 - Scriptwriting

Credits: 4.00

Examines the preproduction phase of moving image media, focusing especially on the art and business of writing for the screen. Covers the process of developing student work from original story idea to completed, first draft screenplay. Topics include script formats, narrative structure, plot development, characterization, style, and marketing strategies. Prereq: ENGL 401 plus either CMN 455 or 456; or permission. Writing intensive.

CA 513 - Radio News Production

Credits: 4.00

Theory and practice of producing news stories for radio. Covers the research, organization, and technical skills necessary to produce a basic three-and-half to four-minute radio piece that includes three interviews, a scene created with sound, instructions for a studio mix, and a host introduction. Intended for beginning and intermediate students who have a strong interest in news writing and news production. Prereq: ENGL 401, plus CMN 455; or permission. Special fee. Writing intensive.

CA 514 - Fundamentals of Video Production

Credits: 4.00

Beginning electronic field production using digital video and nonlinear editing formats. Covers basic aesthetic principles and practices of video communication. Introduces techniques for effective image and sound recording in the field, fundamentals of shot and sequence construction, and basic postproduction practices on nonlinear editing systems. Prereq: ENGL 401, CA 502 or CA 444, CMN 455, or permission. Preference given to CA majors. Special fee.

CA 515 - Advanced Video Production

Credits: 4.00

Advanced electronic field production and post production using digital video and nonlinear editing formats.

Emphasizes original student work of increasing conceptual, formal, and technical complexity that begins to incorporate a wider range of images, sounds, and editing techniques. Prereq: CA 514 or permission. Preference given to CA majors. May be repeated, with permission, to a maximum of 8 credits. Special fee.

CA 516 - Speechwriting

Credits: 4.00

The strategies of art and persuasion in the craft of professional speechwriting for a variety of modes, audiences, and exigencies. Examines a wide array of famous speeches from political, literary and cinematic sources to uncover the fundamental theories of rhetoric and persuasion at work in these texts. Application of these theories and strategies of persuasion in original speechwriting projects. Prereq: ENGL 401 plus CMN 456; or permission.

CA 517 - Fundamentals of Audio Prod

Credits: 4.00

This course provides students with an introduction to the history, principles, and techniques of audio production. Through hands-on experience, class projects, and homework assignments, student learn how to use voice, music, writing, sound effects, and audio hardware and software to design sound and tell a story. This class will also look at the radio industry and how sound design is being used by a variety of industries. Special fee.

CA 520 - Special Topics in Applied Communication

Credits: 1.00 to 4.00

New or specialized topics in applied communication not covered in regular course offerings. Topics vary; descriptions listing course content and any prerequisites are available during preregistration. May be repeated for credit if topics differ for a maximum of 12 credits. Prereq: contingent on topic. Writing intensive when topic is advanced feature scriptwriting.

CA 525 - Media Programming

Credits: 4.00

Process of program planning for electronic media. Covers the contexts -- social, cultural, institutional, economic, technical, regulatory -- within which decisions concerning program selection, form, content, and scheduling are made. Prereq: CMN 455 or permission.

CA 526 - Organization of Newswork

Credits: 4.00

Examines news as socially situated discourse. The professional norms, work routines, representational practices, ideologies, and ethics of news producing organizations. Prereq: CMN 455 or permission.

CA 527 - History of Film

Credits: 4.00

The history of film since 1948. Historical analysis of the development of cinema since the emergence of television, both in the United States and abroad. Selected topics include cinema and the cold war, international stylistic movements, film exhibition, the decline of the studio system, new technologies, third cinema, globalization and economic consolidation. Prereq: CMN 455 or permission. Special fee.

CA 528 - Media Policy and Law

Credits: 4.00

Nature, scope, history and current practice of federal regulation over broadcast and related telecommunications media. Emphasis on FCC policies and procedures in the United States with some coverage of comparative regulatory systems. Prereq: CMN 455 or permission.

CA 531 - History and Organization of Advertising

Credits: 4.00

Examines the development of advertising in historical context, focusing on the evolving structure and function of advertising agencies, market research practices, advertising design, anthropological approaches to advertising and consumer culture, and contemporary policy issues. Prereq: CMN 455 or permission.

CA 535 - Marital Communication**Credits: 4.00**

Introduces students to the study of communication in marital relationships. Examines the major theoretical orientations that characterize the marriage field and investigates the processes by which communication facilitates or hinders marital adjustment and stability: understanding, and relationship satisfaction. Also explores popular cultural constructions of marriage and intimacy and how these influence personal expectations for marital relationships. Students need not be married to take or benefit from this course. Prereq: CMN 457, or permission. Writing intensive.

CA 539 - Communicating in Families**Credits: 4.00**

Explores the role of communication in the creation, maintenance, and transformation of family systems. Focus on how meanings of "family" are constructed through familial and popular discourses, and the consequences these communication practices have for lived experience. Prereq: CMN 457 or permission.

CA 540 - Public Relations**Credits: 4.00**

This course provides students with an overview of the field of public relations, including its history, ethics, and current practices. Will include case studies of major public relations issues that have occurred both historically and in recent years; individual and class projects that enable students to determine how best to plan for and respond to public relations issues; and quest practitioners who work in various fields, including business, government, the non-profit sector, and education. Prereq: CMN 456 or CMN 455 or permission.

CA 550 - Special Topics in Communication Organization, History, and Policy**Credits: 1.00 to 4.00**

New or specialized topics in the organization, history, and policy of communication practices not covered in regular course offerings. Topics vary; descriptions of course content and any prerequisites are available during preregistration. May be repeated for a maximum of 12 credits if topics differ. Prereq: contingent on topic.

CA 600 - Research Methods in Media**Credits: 4.00**

Qualitative research practices for the study of mass communication. Tools for investigating the production contexts of media institutions, the cultural and ideological meanings of media texts, and the social dimensions of media consumption in home and family. Emphasis on how to review literature, develop a research question, define a unit of analysis, select and apply method, interpret data, and draw conclusions grounded in theory. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 is prerequisite or permission. Writing intensive.

CA 601 - Exploring Relationships**Credits: 4.00**

Critically examines the myriad ways qualitative researchers approach the study of interpersonal communication. With an emphasis on the artistic practice of fieldwork, the course considers the process of research design, the relationship between researcher and researched, the moral and ethical aspects of research, issues of representation and audience, and evaluation strategies. Students design, conduct, and present original qualitative research projects. Prereq: any two 500 level CA courses (excluding CA 501),

one of which must have CMN 457 as a prerequisite or permission. Writing intensive.

CA 610 - Communication Technologies and Culture

Credits: 4.00

The role of communication technologies in shaping cultural meanings and human consciousness. Covers the work of Innis, McLuhan, Ong, Postman, Carey and others to understand the historical development of shifting communication technologies and patterns of culture from orality to computer communication. Also explores the dynamic between mass culture and sub-cultural appropriations of media forms and content. Prereq: any two CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite or permission. Writing intensive.

CA 611 - Theories of Relational Communication

Credits: 4.00

Critically examines a variety of theories which seek to explain the dynamics of interpersonal relationships including performance theory, social construction theory, systems theory, feminist theory, and narrative theory. Prereq: any two 500 level courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.

CA 612 - Narrative

Credits: 4.00

Considers the ways humans make sense of experience through the stories we construct within particular relational, cultural, and historical contexts. Explores a variety of topics including narrative conventions, canonical stories, subjectivity and reflexivity, the relationship between story and audience, space and time, memory and imagination, and narrative truth. Each student will conduct an original narrative research project. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.

CA 614 - Communication and Power

Credits: 4.00

Explores the concept of power -- how we conceive of power, how we enact power, and the effects of power in our interpersonal relationships. Using a variety of theoretical approaches such as relational theory, feminist theory, and social constructionist, we will consider the idea that the expression of power is an act of self-definition, that power resides in the ability to define one's reality while identifying and choosing courses of action, and that disempowerment is the end result of the loss of freedom of action. Prereq: Any two 500 level CA courses (excluding CA 501), one of which must have CMN 457 as a prerequisite, or permission. Writing intensive.

CA 615 - Film History/Theory and Method

Credits: 4.00

Intensive study of philosophical, rhetorical, and methodological issues in film history research. Examines a series of selected historical problems in the areas of social, aesthetic, industrial, and technological film history up to 1948 and reviews existing historiography on these problems. Focus is on original student research. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite, or permission. Special fee. Writing intensive.

CA 618 - Documentary

Credits: 4.00

Exploration of the historical development, ethics, funding, socio-cultural significance, and communication strategies of documentary film and video. May focus on a particular genre or genres. Prereq: any two 500 level CA courses (excluding CA 501), one of which must have CMN 455 as a prerequisite, or permission. Special fee. Writing intensive.

CA 720 - Seminar**Credits:** 4.00

Intensive readings and research course in a highly focused area of study. Topics vary. Descriptions of course content and any prerequisites are available during preregistration. May be repeated for credit to a maximum of 12 credits if topics differ. Prereq: contingent on topic. Writing intensive.

CA 795 - Independent Study**Credits:** 1.00 to 4.00

Advanced individual study under the direction of a faculty member. Content area and research project to be developed in consultation with faculty supervisor. Prereq: permission. May be repeated for up to 8 credits, with 4 credits maximum accepted toward satisfaction of requirements for the CA major.

Communication Sci&Disorders

COMM 401 - American Sign Language I

Credits: 4.00

Introduction to the vocabulary, finger spelling, grammatical processes, phonology, syntax, and semantics of American Sign Language. Emphasis on applying principles of sign language; psychosocial aspects of deafness, and the deaf person as bilingual; grammatical processes that modulate meaning of sign in discourse; development of receptive language skills. Lab.

COMM 402 - American Sign Language II

Credits: 4.00

Emphasis on the advanced linguistic principles of American Sign Language including idioms slang and its place in the communication pattern of the deaf. Improvement of speed and accuracy in receptive and expressive skills for communicating with the deaf. Educational and vocational problems associated with deafness. Prereq: COMM 401 or its equivalent; juniors and seniors only. Lab.

COMM 520 - Survey of Communication Disorders

Credits: 4.00

Causes, diagnosis, and treatment of speech, language, and hearing disorders.

COMM 521 - Anatomy and Physiology of the Speech and Hearing Mechanisms

Credits: 4.00

Anatomy, physiology, neurology, and function of the mechanisms for the production and perception of speech.

COMM 522 - Acquisition of Language

Credits: 4.00

Introduction to normal language acquisition; stages of children's developing language examined within a linguistic framework with attention paid to syntax, morphology, phonology, semantics, and pragmatics. Theories of language acquisition overviewed.

COMM 524 - Clinical Phonetics

Credits: 4.00

Application of the International Phonetic Alphabet to normal and clinical populations; use of broad and narrow transcriptions. Basic speech science, acoustic phonetics, and acoustic analysis of speech production.

COMM 536 - Introduction to Deaf Studies

Credits: 4.00

This course addresses various aspects of the deaf community, including the value of American Sign Language and the culture it reflects, professions within the deaf community, legislation affecting deaf people, educational approaches and controversies, activities and events relating to the population, and hearing-related issues.

COMM 537 - Understanding Deaf Culture

Credits: 4.00

This course examines deaf culture from a multidisciplinary perspective. The historical treatment of deaf individuals is explored within a sociological and cultural context as a backdrop to the emergence of deaf culture. Course content includes minority group dynamics, education of the deaf, the deaf community as a

linguistic and cultural minority, and the importance of deaf culture.

COMM 575 - Have You Heard? The Fundamentals of Hearing and Hearing Loss

Credits: 4.00

This course will provide an overview of hearing loss including current issues and technology. Areas of study will focus on the incidence of hearing loss, terminology and definitions, service delivery models, educational trends, accessibility regulations and the impact of noise. Information about the various professionals, who work with individuals with hearing loss, and their respective roles, will also be provided. This 4 credit course is open to all undergraduates and it has no prerequisites.

COMM 630 - Organic Pathologies

Credits: 4.00

Neurological bases, diagnosis, and treatment of communication disorders; emphasis on motor speech disorders and aphasia. Prereq: permission.

COMM 631 - Articulation and Language Disorders in Children

Credits: 4.00

Research, diagnosis, and therapy procedures as applied to articulation and language disorders.

COMM 635 - Professional Issues in Speech-Language Pathology

Credits: 4.00

Introduction to the profession of speech-language pathology; review of issues related to scope of practice; professional ethics, certification/licensure, and current challenges facing the profession. Discussion of employment opportunities for speech-language pathologists. Writing intensive.

COMM 637 - Multicultural Issues in Communication Disorders

Credits: 4.00

The purpose of the course is to allow students to become informed about the complexity and the ways in which cultures differ. The students develop a comprehensive understanding of, cross cultural sensitivity to, and competence of one's own culture and the characteristics of the four major cultural groups in the United States. The students also develop intercultural skills for assessing and counseling individuals as mandated by our professional association policies and positions on language diversity in the clinical management of clients from diverse cultural and linguistic backgrounds.

COMM 638 - American Sign Language Teaching Assistant

Credits: 3.00

Students pursuing advanced training in ASL have opportunities to hone their own signing skills by assisting ASL instructors in classroom and other settings, serving as student mentors, ASL lab assistants, and tutors. Course may be repeated up to a maximum of 6 credits. Prereq: ASL I and II. Permission required.

COMM 660 - Special Problems

Credits: 2.00 to 8.00

Individual or group projects to enrich or expand theoretical knowledge and to afford an opportunity for applied experience. May be repeated to a maximum of 8 credits. Prereq: permission and arrangement with faculty.

COMM 704 - Basic Audiology

Credits: 4.00

Normal hearing process and pathologies of the auditory system. Hearing screening, pure-tone testing, and speech audiometry. Prereq: COMM 521 or permission.

COMM 705 - Introduction to Auditory Perception and Aural Rehabilitation

Credits: 4.00

Research, testing, and clinical procedures of auditory perception, applied to the communicatively impaired. Prereq: COMM 704; permission.

COMM 734 - American Sign Language III**Credits: 4.00**

Builds upon the information covered in Introductory ASL I and II. Development of basic grammatical rules, vocabulary, manual alphabet/numbers, visual-gestural communication, and information related to Deaf Culture are covered. All lectures, laboratory activities, outside assignments build upon rudimentary competency in receptive and expressive use of ASL and develop fluency and competency. Class is conducted using ASL only. Prereq: American Sign Language I and II.

COMM 735 - American Sign Language IV**Credits: 4.00**

Builds upon the information covered in Introductory ASL I, II, and III. Development of basic grammatical rules, vocabulary, manual alphabet/numbers, visual-gestural communication and information related to Deaf Culture are covered. All lectures, laboratory activities, outside assignments build upon rudimentary competency in receptive and expressive use of ASL and develop fluency and competency. Class is conducted using ASL only. Prereq: American Sign Language I, II, and III.

COMM 736 - Clinical Assistant**Credits: 2.00**

This course is designed for seniors who are majoring in Communication Sciences and Disorders (CS&D). This course offers an opportunity to gain pre-professional clinical experience by serving as an assistant to a graduate clinician who is participating in a practicum at the UNH Speech-Language-Hearing Center. Clinical assistants will be able to take an active part in the treatment of an individual with a communication delay, disorder or difference. The undergraduate's role in the clinical process will be contingent upon his or her level of training and assigned responsibilities. The supervising clinical faculty is responsible for overseeing the intervention program. Prereq: Seniors who are majoring in CS&D and have a GPA of 3.3 or above. Permission of the instructor is required. Enrollment is limited and varies each semester depending on the number of clients available. May be repeated up to a maximum of 4 credits.

COMM 738 - Linguistics of American Sign Language**Credits: 4.00**

This course provides linguistic study of the major structural aspects of phonology, morphology, syntax, lexicology, and discourse in American Sign Language. Concepts of language variation, dialect, creolization, and bilingualism are studied. Taught primarily in ASL. Prerequisites/Proficiencies: COMM 733 - Elementary American Sign Language II Minimum grade of: C.

COMM 739 - Introduction to Aphasia in Adults**Credits: 4.00**

The course introduces the student to the relationship of brain and language and the resulting language processing problem following cerebral vascular accident (CVA). Differential diagnosis of language symptoms and treatment strategies are discussed and observed in clinical situations. Permission required.

COMM 740 - Treatment of Adults with Acquired Brain Injury**Credits: 4.00**

This "hands-on" multidisciplinary experience enables students to acquire clinical skills and professional competence in a community-based day program where they assist adults with acquired brain injury meet their physical, emotional, cognitive-linguistic, social, spiritual, recreational, and vocational needs. Permission required.

COMM #775 - Advanced Language Acquisition**Credits:** 4.00

Careful examination of theoretical perspectives and landmark studies provides the foundation for the exploration of advanced topics in language acquisition. Current approaches to child language research guide students to approach the course context from a scientific perspective. Prereq: COMM 522, permission.

COMM 777 - Speech and Hearing Science**Credits:** 4.00

Physical, acoustical, and perceptual correlates of normal speech production and audition. Includes theoretical models with the generation, transmission, detection, and analysis of speech signals.

COMM 779 - Deaf and Hard of Hearing Internship**Credits:** 4.00

The internship will allow students in the Deaf and Hard of Hearing Minor to expand their knowledge about the needs, challenges and experiences of deaf and hard of hearing individuals. The internship locations will be varied and matched, as closely as possible, to the student's particular interests. Potential placement opportunities include a school for the deaf, a public agency or vocational setting which provides services for deaf and hard of hearing individuals. Prereq: COMM 533, COMM 536, and COMM 733; permission. Cr/F.

COMM 795 - Independent Study**Credits:** 1.00 to 8.00

Individual or group projects involving directed study of an area of communication disorders that students wish to explore in greater depth than is covered in the required curriculum. May be repeated to a maximum of 8 credits. Prereq: permission.

COMM 798 - Special Topics**Credits:** 1.00 to 4.00

New or specialized topics not covered in regular course offerings. May be repeated for a total of 8 credits. Special fee on some topics.

Community&Environmental Plan

CEP 415 - Community Development Perspectives

Credits: 4.00

Introduces the concepts of community development and issues that are facing contemporary communities as they undergo change. Focus on strengthening communities through a process of citizen participation and decision making which empowers citizens to direct and control change that affects their lives in the local community. Emphasis given to the roles and responsibilities of professional administrators and individual citizens in the dynamic process of community policy formulation, decision making, and administrative implementation.

CEP 508 - Applied Community Development

Credits: 4.00

Students work in an actual community, assisting individuals and groups to identify needs and problems, establish attainable and objective goals, assess requirements and resources, and formulate programs for development and methods of collection, analysis, and integration of pertinent primary and secondary economic, social, political, and physical data for community development. Prereq: CEP 415 or permission. Lab

CEP 614 - Fundamentals of Planning

Credits: 4.00

Community planning process in nonmetropolitan communities; practical application of planning techniques. Communities' components: housing, jobs, schools, recreation, transportation, community appearance, and the administrative structure for planning. Use of planning tools: data gathering and analysis, the master plan, zoning and subdivision regulations, community development programs. Prereq: EREC 411; CEP 415;/or permission. (Offered every other year.) Writing intensive.

CEP 627 - Community Economics and Finance

Credits: 4.00

Economic and financial factors affecting community and local government decisions. Emphasis on use of economic theory and analytical techniques to evaluate problems in contemporary New England communities and towns. Prereq: EREC 411 or ECON 402. (Also offered as EREC 627. Offered every fourth semester.)

CEP 672 - New Hampshire Real Estate

Credits: 4.00

This course covers timely subjects in National and regional real estate, such as types of property ownership, easements, financing, contracts, appraisal, brokerage, property listings, commissions, fair housing, and property management. The goal of this class is to prepare students to pass the New Hampshire Real Estate Sales Agent License Exam and/or be knowledgeable real estate investors. Prereq: MATH 420 or higher.

CEP 710 - Seminar

Credits: 2.00 to 4.00

Seminars arranged to students' needs and offered as demand warrants: in-depth treatment of area, including classic work. May be repeated.

CEP 720 - Community-Based Natural Resource Management: Lessons from the Field

Credits: 3.00

Guest lectures by extension agents and practitioners from a variety of natural resource-based fields, including: agriculture, forestry, marine resources, planning, and community/economic development. Theoretical and practical aspects of community outreach in the natural resources arena. Prereq: CEP 415, EREC 411, NR 401 or permission from instructor. Participation in outreach project required.

CEP 777 - Topics in Community Planning

Credits: 4.00

Advanced treatment of the concepts and tools required for effective local and regional planning to guide land use, capital investment in infrastructure, and organization for service delivery. Prereq: CEP 614 or permission. (Also listed as RAM 877.) (Offered every other year.) Writing intensive.

CEP 793 - Community Administration Internship

Credits: 1.00 to 8.00

Fieldwork in governmental agency or a local government unit for on-the-job skill development. Normally supervised by a qualified administrator in the organization with frequent consultation with a faculty sponsor. A written report is required. Internship may be part- or full-time with course credits assigned accordingly. Prereq: permission. Cr/F.

CEP 794 - Community Planning Internship

Credits: 1.00 to 8.00

Fieldwork in a public planning office or agency for on-the-job skill development. Normally supervised by a qualified planner in the planning organization with frequent consultation with a faculty sponsor. A written report is required. Internship may be part- or full-time with course credits assigned accordingly. Prereq: permission. Cr/F.

CEP 795 - Investigations

Credits: 2.00 to 4.00

Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission.

CEP 795W - Investigations

Credits: 2.00 to 4.00

See description for CEP 795. Writing intensive.

CEP 796 - Investigations

Credits: 2.00 to 4.00

Special assignments in readings, investigations, or field problems, or teaching experience. May be repeated. Prereq: permission.

CEP 796W - Investigations

Credits: 2.00 to 4.00

See description for CEP 796. Writing intensive.

CEP 797 - Community Administration and Planning Seminar

Credits: 1.00 to 4.00

Selected topics in community administration and in community and regional planning. Focuses on current issues of major importance that are not usually covered in regular community administration to a maximum of 8 credits. Prereq: permission. Special fee.

Community Leadership

CSL 200 - Technology for Community Service and Leadership

Credits: 2.00

This two-credit course will provide students with the skills needed to effectively use Microsoft Office and other related computer applications. During the second half of the semester, students will further develop their computer skills and their social science research skills by completing research assignments and other projects designed to enhance their understanding of the information available to them through web-based investigation.

CSL 201 - Introduction to Community Service and Leadership

Credits: 4.00

This course serves as the foundation course for the Community Service and Leadership Program. Students are introduced to current and historical definitions of community and "service" to the variety of organizations providing service within communities, and to the challenges facing leaders within community organizations as they work to address key problems. All students will participate in a variety of community placements during this course.

CSL 202 - Introduction to Nonprofit Organizations

Credits: 4.00

This practical course provides an overview of the unique responsibilities and practices needed to effectively manage a community-based nonprofit organization. Topics include: issues of organizational structure and staffing, strategic planning, board effectiveness, financial management, leadership roles and responsibilities, and public accountability.

CSL 203 - Organizing and Supervising Volunteers

Credits: 4.00

This course provides students with the knowledge and skills necessary to design, organize, and manage effective volunteer programs. Topics covered include: identifying organizational volunteer needs, recruiting, supervising, and motivating volunteers, integrating volunteers into the overall goals and services of an organization, and creating effective volunteer training programs. Students will explore resources available for creating a successful volunteer program and will research the variety of approaches to volunteer management that organizations currently use. Permission required.

CSL 204 - Managing Change and Conflict in Communities

Credits: 4.00

This course examines a variety of approaches to promoting and responding to community change. Through active participation and analysis of specific community initiatives, students will explore such topics as issue-identification, planning for change, power dynamics and conflict within diverse groups, strategies for action, lobbying, and influencing political action. Prereq: CSL 201, permission.

CSL 205 - Communication Within Communities

Credits: 4.00

This course focuses on the ways we influence--and are influenced by--others within the communities in which we live and participate. Students have the opportunity to analyze how a specific "real life" community issue is presented, interpreted, and resolved through various written and oral mediums. Additional coursework involves frequent writing and speaking assignments, with particular emphasis on the forms of persuasion that most commonly shape "community opinion." Students will also examine community newsletters and create at least one newsletter as a service to a community organization. Prereq: COM 209,

210 or Coreq: COM 210.

CSL 206 - Literature of Family and Community

Credits: 4.00

Through a wide range of readings, primarily fiction, this course examines what it means to be an individual living in the context of family and community. Students use these readings both to examine differing concepts of community and to explore how individuals and groups respond to the challenges of creating as well as changing their communities. Coursework involves critical analysis, group-led discussions, and frequent short papers. Prereq: COM 211 or instructor permission.

CSL 207 - Introduction to Non-profit Budgeting and Accounting Practices

Credits: 3.00

This course is designed to help students understand the responsibilities of nonprofit financial management. It introduces key budgeting and accounting practices for community-based nonprofit organizations. Students will explore such topics as budget planning and development, budget design, roles and responsibilities of those involved in budgeting, and how to read and interpret financial data. Common nonprofit accounting principles and approaches will also be taught.

CSL 208 - Essentials of Fundraising for Community-Based Organizations

Credits: 2.00

The ability to raise funds is essential to all community-based and nonprofit organizations. This course is designed to provide students with the essential knowledge and skills to develop and execute a successful fundraising program. Topics covered include: prospect research, choosing fundraising strategies, common fundraising mistakes, maintaining relationships with donors, raising money by mail, personal solicitation, event planning, and other key approaches to raising money.

CSL 209 - Essentials of Grant Writing for Community-Based Organizations

Credits: 2.00

This course provides the information and skills necessary to research and apply for grants from government agencies, foundations, corporations, and other sources. Students will follow the process of grant-seeking from identifying need through application and follow up.

CSL 210 - Capstone Seminar

Credits: 4.00

This seminar provides the opportunity for students in their final semester to synthesize their learning and skills as they broaden their understanding of the political and social policy dimensions of community organizing and leadership. Each student will engage in a significant service project that will serve as the focal point for both skill application and issue analysis. Prereq: CSL 201, 202, 203, and CSL 205.

CSL 290 - Civic and Community Internship

Credits: 4.00

This internship is designed to promote experiential learning about community service and leadership through active involvement within a community organization. It provides students with an opportunity to build upon their skills and interests while developing an awareness of civic and community issues. In addition to participating in community projects, students are expected to reflect upon their experiences and to relate them to assigned reading. Each student will also complete a research project based on a problem encountered at the service site. Prereq: CSL 201 or permission of instructor. May be repeated for up to 8 credits.

CSL 291 - Studies in Community Service and Leadership

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to

design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific community leadership/organizing topic. Prereq: CSL 201 or equivalent.

CSL 292 - Studies in Community Service and Leadership

Credits: 1.00 to 4.00

See description for CSL 291.

CSL 297 - Work Experience

Credits:

Career-related internship and/or training (minimum of 50 hours) that enhances previous course work and service-learning experiences in community organizing and leadership. Students may work with a community-based and/or nonprofit organization in a full or part-time position; participate in an internship with an organization that serves the needs of the community; attend UNH's Leadership Program or other leadership programs to learn more about leadership, teambuilding, and other group management skills; create an independent project based on a specific interest; or work with a "for profit" company. Course focus is on learning new skills and developing deeper insights into the work of creating and sustaining community. Required for graduation. Prereq: CSL major. Cr/F.

Computer Information Systems

CIS 405 - Introduction to Internet and Web Authoring

Credits: 4.00

The fundamental technologies, protocols, and practices that make up the Internet. The Internet as a global information system that has transformed the current business environment. Additional topics include: Internet structure; applications; business uses; legal and ethical issues introduced by networked computers such as privacy, fraud, and security. A significant portion of the course covers Web authoring procedures and languages. Students create a Web site using xhtml language and are introduced to JavaScript. No prior computer experience is required. Cannot receive credit if credit earned for CS 403.

CIS 411 - Introduction to Computer Applications

Credits: 4.00

Beginning course on computer technology, specifically microcomputer systems. Emphasis is on (1) using computers to manage information for personal and professional applications and (2) the impact of computer information technology on today's society. Software applications used include word processing, spreadsheets, database, and graphics. Independent lab activities are a major part of the course content. No prior computer experience is required. No credit if credit has been received for DCE 491; 492; CS 401.

CIS 425 - Introduction to Computer Programming

Credits: 4.00

An introduction to computer programming and problem solving. Introduces the programming process and algorithm development. Students learn the Visual Basic programming environment. Emphasis is on Graphical User Interface issues and their relation to sub-programs. Assignments are drawn from applications in a wide range of business contexts. No credit for students who have completed CS 505.

CIS 510 - Fundamentals of Computer Information Systems

Credits: 4.00

Investigates the role and impact of computer applications on computer information systems in general and specifically as applied to business requirements. Surveys the components of a computer information system; explores computer information systems in areas such as manufacturing, medicine, education, and government; discusses the issues of computerizing information resources. Directs attention to computer information systems in business and identifies the need for and function of formal systems development methodologies. Prereq: CIS 411 or equivalent. Writing intensive.

CIS 515 - Multimedia: Introduction and Applications

Credits: 4.00

Examines the history and underlying theory behind computer integration of text, sound, video, and graphics. Topics include: hardware and software requirements, design criteria, analysis of current hypertext, and multimedia applications in education and business. Students gain practical experience in developing multimedia applications on the Macintosh platform.

CIS 520 - Database Design and Development

Credits: 4.00

Students will develop a database application using the relational model and DBMS. Special emphasis in understanding the steps involved in designing a database and using a relational model to implement the design. The design implementation starts from the conceptual design to the implementation of a database schema and user interfaces to the database. Students will use a commercial database management system, the database query language SQL. Considerations for database maintenance and security will be

addressed as well as current trends in object oriented databases and eCommerce applications. Prereq: CIS 510

CIS 542 - Operating System Applications

Credits: 4.00

Introduction to operating system concepts with relevant lab experiences. Topics include the goals and objectives of operating systems; the management of memory, processing, files, and resources; and a survey of current operating components. Students will understand and apply basic operating system concepts and principles, learn an operating system in some detail, appreciate the design considerations involved in O/S development. Prereq: CIS 411, CIS 510, or permission.

CIS 550 - Networking Concepts

Credits: 4.00

Explores the fundamentals of data communications and networking requirements for an organization, including the standard layers of network organization; network technologies; and architectures and protocols for WAN, LAN, and Internet systems. Includes issues of security, design, management, and future developments, particularly in a business environment. Knowledge of computer hardware and operating systems is required. Prereq: CIS 510, CIS 542, or equivalent.

CIS 560 - Computer Law and Ethics

Credits: 4.00

Examines the ethical and legal issues that face a computer professional. Surveys ethical theories and moral problems related to information technology. Students develop and articulate a personal point of view on computer issues based on sound ethical principles and consider the impact of such views on co-workers, employers, and society in general. Topics also include: major social issues involving computerization such as intellectual property, privacy, computer reliability, and security; current U.S. and international laws relevant to computer and network usage. Case study analysis is a major component in course delivery. Prereq: CIS 510 or permission. Writing intensive.

CIS 599 - Special Topics

Credits: 1.00 to 4.00

Topics covered will vary depending on contemporary computer topics, programmatic need, availability and expertise of faculty. Barring duplication of subject, may be repeated for credit up to a maximum of 8 credits.

CIS 605 - Web Applications Development

Credits: 4.00

This course provides experience in design and coding of interactive business web sites. Students learn planning and design issues for an organization's application. Course covers advanced XHTML, CSS implementation, Javascript, ASP.net, web tools for electronic commerce, options for adding security, and electronic payment to a web site. Students will code and manage an application on a web server. Prereq: CIS 505 or permission of the instructor.

CIS 610 - System Analysis and Design

Credits: 4.00

Addresses procedures to analyze, evaluate, and articulate requirements for an information system to accomplish project goals. Implementing a new information system, or enhancing an existing system, requires a formalized process to study an organization's needs; gather and analyze appropriate data; and report on existing systems, new systems requirements, and project priorities. The class will survey tools and techniques used in the analysis and design phases; emphasize documentation and procedures; and research trends in modeling and design software. Communication, group interaction, interviewing, and presentation skills are stressed to effectively articulate the analysis and design proposals. Open to majors who have completed Level 1 and Level 2 coursework. Writing intensive.

CIS 615 - Information Security

Credits: 4.00

Data and information are the primary assets for all organizations. CIS professionals who administer, program, support, and develop information systems are the guardians of these digital assets. This course prepares students to understand the nature of information security, the threats to computer systems both within and outside an organization, technical procedures to protect computer systems, management policies that address and enforce security, and the legal options to resolve misuse and breaches to security. Prereq: CIS 510, CIS 542, CIS 550, or permission of instructor.

CIS 620 - Network Administration and Maintenance

Credits: 4.00

Develops the theory of networks through practical application of administering and maintaining a LAN. Includes the routine tasks of a network administrator using a common network operating system. Routine tasks include: setup directory services, assign access privileges, tune network services, understand and implement network security, perform routine maintenance, and practice troubleshooting techniques. Prereq: Majors must complete Level 1 and Level 2 requirements, or permission.

CIS 630 - Application Programming Using JAVA

Credits: 4.00

Students apply the basic concepts and techniques of object-oriented programming to an information processing application. The course reviews basic data structures such as lists, stacks, and queues. Control structures, file manipulation, recursion and an introduction to graphic user interface design are covered and applied to programming business applications. Introduces students to object-oriented design and analysis. Good programming style is stressed. Significant out of class programming is required. Prereq: Majors must complete Level 1 and Level 2 requirements, or permission.

CIS 650 - System Implementation with DBMS

Credits: 4.00

This course provides practical experience in developing a detailed application for a subsystem of a computer information system. Students will implement a physical and logical design for the application using a DBMS. Topics include the conceptual, physical, and logical data models, design and project management tools. Students will specify the logical design for output, input, processing of the database as well as implement and evaluate the database application and will identify a security and maintenance plan. Emphasis will be on the implementation process, software tools, and development team through the completion of a computer information system. Prereq: Majors must complete Level 1 and Level 2 requirements, including CIS 520, CIS 610, or permission.

CIS 680 - Internship

Credits: 4.00

Provides field-based learning opportunity through placement in a computer information system environment. Students will gain practical computer experience in a business or non-profit organization. Under the direction of a faculty advisor and workplace supervisor, the student is expected to contribute to the work of the organization. Students will create a portfolio of their professional activities. May be repeated for a maximum of 8 credits. Prereq: Majors must complete Level 1 and Level 2 requirements, or permission.

Computer Science

CS 400 - Introduction to Computer Science

Credits: 1.00

Initial exploration of computing, including comparison of the various subfields. A wide range of issues, including fundamental concepts, selected current topics and the role of both computing and computing professionals in organizations and in society are also discussed. Cr/F.

CS 401 - Computers and Their Applications

Credits: 4.00

Use of computers to manage and analyze information across a variety of settings and disciplines. Introduces major categories of computer software, including word processing, spreadsheets and database systems. Covers basic computer concepts and the computer's role in today's society. Significant hands-on work required outside of the class. Not open to CS majors. CEPS students should check with their major department for approval.

CS 401H - Honors/Computers & Their Appl

Credits: 4.00

See description for CS 401.

CS 403 - Weaving the Web: Creating Content for the World Wide Web

Credits: 4.00

Introductory course exploring the World Wide Web and its role in modern society. Students develop an understanding of the Web's underlying technologies and learn how to utilize them as contributing members of the online community. Students become proficient with creating and publishing Web pages using XHTML and CSS. Additional subjects include the security of computer communications and the various social implications of a networked world. No prior knowledge or experience is assumed. No credit if credit earned for CIS 405 (Note: CIS 405 is offered at UNH Manchester, and is not related to CS 405 at UNH Durham.)

CS 405 - Introduction to Applications Programming with Visual Basic

Credits: 4.00

Introduces the concepts and techniques of microcomputer windows programming. Students use the Visual Basic language to develop modular, event-driven programs/applications. Topics include: forms, properties, controls, variables, decision structures, and built-in and user-defined functions and subroutines. CEPS students should check with their major department for approval. Not open to CS majors.

CS 410 - Introduction to Scientific Programming

Credits: 4.00

Introduces the concepts and techniques of computer programming. Particular emphasis on computer programming as a problem-solving technique in science and engineering applications. The C language is taught and used for assignments. Good programming style is stressed. Significant out-of-class programming required. Not open to students who have completed CS 407, 415, or the equivalent. Pre- or Coreq: MATH 425.

CS 415 - Introduction to Computer Science I

Credits: 4.00

Theory and practice of computer science. Algorithm development and analysis; data abstraction techniques; elementary data structures; dynamic memory manipulation; debugging; and program design

issues. Computer systems and applications. Intended for CS majors.

CS 416 - Introduction to Computer Science II

Credits: 4.00

See description for CS 415.

CS 444 - Computer Technology: Balancing Risks Against Reward

Credits: 4.00

Computer technology permeates life in our modern world, for better and for worse. Its rewards to individuals and society are unprecedented. Yet so are its risks. This course examines computer technology's role in modern society and endeavors to assess its impact - both beneficial and detrimental. Problems are evaluated from a variety of perspectives, including technological, societal, legal, commercial and ethical.

CS 503 - Introduction to Web Programming

Credits: 4.00

Introduces the concepts and techniques of client-side development for the World Wide Web. Students will be taught the basics of programming and how to apply that knowledge to enhance Web pages. Topics include variables, control structures, functions, events, objects, user feedback, form handling, and the Document Object Model. Significant out-of-class programming required. Prereq: CS 403.

CS 515 - Data Structures

Credits: 4.00

Reviews basic data structures; advanced data structures such as graphs, B-trees, and AVL trees; abstract data structure design and programming techniques; use of data abstraction language. Introduction to algorithm analysis. Prereq: CS 416.

CS 516 - Introduction to Software Design and Development

Credits: 4.00

Principles of problem analysis and solution design applied to the development cycle of a software system (i.e., from system requirements specifications to design, implementation, and system test). Experience in understanding and debugging existing software systems. Prereq: CS 416.

CS 520 - Assembly Language Programming and Machine Organization

Credits: 4.00

Assembly language programming and machine organization: program and data representation; registers, instructions, and addressing modes; assemblers and linkers. Impact of hardware on software and software on hardware. Historical perspectives. Prereq: CS 515.

CS 595 - Professional Ethics and Communication in Computer Science

Credits: 2.00

A seminar course intended to improve both reasoning and ability to communicate effectively in front of an audience. Students learn basic forms of ethical argument, they read about ethical situations in which technology and technology professions play a key role, and they participate in student-led discussions about the reading. Students also make oral presentations about both ethical and technical topics, and evaluate each others' presentations in order to improve their sense for what makes a good presentation.

CS 600 - Internship

Credits: 1.00

Provides opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the department chair. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the

internship, and what supervision will be available to the student during the internship. A mid-semester report and a final report are required. Prereq: permission. May be repeated up to a maximum of 4 credits. Cr/F.

CS 620 - Operating System Fundamentals

Credits: 4.00

Introduces operating system concepts and design. Job, process, and resource management; scheduling; file systems; inter-process communication. Prereq: CS 515 and CS 520 or ECE 562.

CS 645 - Introduction to Formal Specification and Verification

Credits: 4.00

Mathematical reasoning can be applied to study the behavior of software systems, an approach that is particularly relevant to critical systems. This can be achieved through the description of those systems along with their properties in formally-defined, logically-based languages. Introduces techniques relevant to the application of formal specification and verification methods, including symbolic logic and proof techniques related to program correctness. Prereq: CS 515, MATH 531, MATH 532.

CS 659 - Introduction to the Theory of Computation

Credits: 4.00

Review of sets, relations, and languages. Induction and diagonalization. Finite automata, context-free languages, pushdown automata. Basic complexity theory. Prereq: MATH 531

CS 671 - Programming Language Concepts and Features

Credits: 4.00

Explores the main features of modern, high-level, general purpose programming languages from the user (programmer) point of view. Provides students with an opportunity to use non-imperative programming paradigms, such as object-oriented, functional, and logical, and to learn how specific features of such languages can be used efficiently in solving programming problems. Prereq: CS 516.

CS 696 - Independent Study

Credits: 1.00 to 6.00

Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated for credit.

CS 696W - Independent Study

Credits: 1.00 to 6.00

See description for CS 696. Writing intensive.

CS 712 - Compiler Design

Credits: 4.00

Formal languages and formal techniques for syntax analysis and parsing; organization of the compiler and its data structures; problems presented by error recovery and code generation. Classical top-down and bottom-up techniques currently in wide-spread use, general discussion of LL(k) and LR(k) parsers; automatic methods of compiler generation and compiler compilers. Students required to define a simple, nontrivial programming language and to design and implement its compiler. Prereq: CS 520 and CS 671.

CS 719 - Object-Oriented Methodology

Credits: 4.00

Object-oriented system design and programming. Languages for object-oriented programming. Design intensive. Prereq: CS 671 or permission.

CS 719W - Object-Oriented Methodology

Credits: 4.00

See description for CS 719. Writing intensive.

CS 720 - Operating System Programming

Credits: 4.00

Detailed discussion of operating system concepts and features. Practical examples and exercises that utilize advanced operating system features, including inter-process communication, synchronization, client-server communication, shared memory, threads, remote procedure calls, and device-level I/O. Discussion of POSIX 1003.1 Part I Standards. Prereq: CS 516 and CS 620.

CS 721 - Operating System Kernel Design

Credits: 4.00

Design and implementation of an operating system kernel, using LINUX as an example. Detailed discussion of the data structures and algorithms used in the kernel to handle interrupts, schedule processes, manage memory, access files, deal with network protocols, and perform device-level I/O. Course is project-oriented, and requires the student to make modifications and additions to the LINUX kernel. Prereq: CS 720 or permission.

CS 723 - Performance Evaluation of Computer Systems

Credits: 4.00

Introduces the main concepts, techniques, and tools needed to evaluate the performance of computer systems under various configurations and workloads. The techniques allow one to perform capacity planning based on quality of service requirements of users and workload characteristics. Course is mainly based on the use of analytic queuing network models of computers systems. The performance techniques are applied to study the performance of centralized, distributed, parallel, and client/server systems. The course also discusses performance measuring tools for operating systems such as Unix and Windows NT. Prereq: CS 620 or equivalent.

CS 725 - Computer Networks

Credits: 4.00

Introduces local, metropolitan, and wide area networks using the standard OSI Reference Model as a framework. Introduces the Internet protocol suite and network tools and programming. Discusses various networking technologies. Prereq: CS 516 and CS 620.

CS 730 - Introduction to Artificial Intelligence

Credits: 4.00

In-depth introduction to artificial intelligence, concentrating on aspects of intelligent problem-solving. Topics include situated agents, advanced search techniques, knowledge representation, logical reasoning techniques, reasoning under uncertainty, advanced planning and control, and learning. Prereq: CS 671.

CS 730W - Introduction to Artificial Intelligence

Credits: 4.00

See description for CS 730. Writing intensive.

CS 735 - Introduction to Parallel and Distributed Programming

Credits: 4.00

Programming with multiple processes and threads on distributed and parallel computer systems. Introduces programming tools and techniques for building applications on such platforms. Course requirements consist primarily of programming assignments. Prereq: CS 516 and CS 620.

CS 745 - Formal Specifications and Verification of Software Systems

Credits: 4.00

Course focuses on the formal specification and verification of reactive systems, most notably concurrent and distributed systems. Topics relevant to these systems, such as non-determinism, safety and liveness properties, asynchronous communication or compositional reasoning, as discussed. We rely on a notation (TLA+, the Temporal Logic of Actions) and a support tool (TLC, the TLA+ Model Checker). Prereq: CS 659.

CS 758 - Algorithms

Credits: 4.00

An introduction to important concepts in the design and analysis of algorithms and data structures, including implementation, complexity analysis, and proofs of correctness. Prereq: CS 515 and CS 659.

CS 760 - Introduction to Human-Computer Interaction

Credits: 4.00

Human-computer interaction is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. Prereq: CS 516 and CS 620.

CS 760W - Introduction to Human-Computer Interaction

Credits: 4.00

See description for CS 760. Writing intensive.

CS #765 - Introduction to Computational Linguistics

Credits: 4.00

Introduces computational analysis of natural language with a focus on semantic representations and the resolution of ambiguity. Provides an elementary working knowledge of linguistic and artificial intelligence analysis methods as motivated by examples of potential input texts. Topics include parsing, formal grammars, representation of knowledge and memory, inference, and interpretation of non-literal language. Prereq: elementary knowledge of LISP or instructor's permission.

CS #765W - Introduction to Computational Linguistics

Credits: 4.00

See description for CS 765. Writing intensive.

CS 767 - Interactive Data Visualization

Credits: 4.00

Detailed discussion of how an understanding of human perception can help us design better interactive displays of data. Topics include color, space perception, object perception and interactive techniques. Students write interactive programs, give presentations and undertake a project designing and evaluating a novel display technique. Prereq: instructor's permission.

CS 767W - Interactive Data Visualization

Credits: 4.00

See description for CS 767. Writing intensive.

CS 770 - Computer Graphics

Credits: 4.00

Input-output and representation of pictures from hardware and software points of view; interactive techniques and their applications; three-dimensional image synthesis techniques and their applications. Prereq: CS 671.

CS 770W - Computer Graphics

Credits: 4.00

See description for CS 770. Writing intensive.

CS 771 - Web Programming Paradigms

Credits: 4.00

In this course you will learn languages to program the Web. Languages integrated into browsers, like JavaScript, and languages invoked on the server, like Ruby. You will also learn about frameworks, like Rails, and various techniques used to support the programming process. In addition, you will learn languages you will need to create, modify, and process Web documents. Although we will learn how to read and write in these languages, our primary goal will be an understanding of how the design of these multi-paradigm dynamic languages support the process of developing Web applications. Prereq: CS 671.

CS 775 - Database Systems

Credits: 4.00

Database analysis, design, and implementation. Focus on the relational model. Data description and manipulation languages, schema design and normalization, file and index organizations, data integrity and reliability. Usage of selected DBMS. Prereq: CS 671 and MATH 531.

CS 780 - Topics

Credits: 1.00 to 4.00

Material not normally covered in regular course offerings. May be repeated for credit.

Decision Sciences

DS 444 - Meaning of Entrepreneurship

Credits: 4.00

This course explores the idea and ideals of entrepreneurship, the creating of value through individual initiative, creativity and innovation. The idea of entrepreneurship is of significant relevance in the highly dynamic and competitive 21st century global economy. It is an idea that is important for students to understand and to critically consider and apply. Encourages the development of multiple views of entrepreneurship, and uses a broad, not just business, approach to the study as it engages students in the subject matter. Open to freshmen from all majors. (Also offered as MGT 444.) Writing intensive.

DS 698 - Topics

Credits: 4.00

Special topics; may be repeated. Prereq: permission.

DS 741 - Private Equity/Venture Capital

Credits: 4.00

This course will notably increase knowledge and understanding of the private equity financing market, develop analytical skills in evaluating private equity financing details, learn from the experience of market practitioners, and enhance oral and written presentation skills. Prereq: ADMN 601 and senior standing.

DS 742 - Internship in Entrepreneurial and Management Practice

Credits: 4.00

Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high-growth environment of entrepreneurial ventures. Focus on several topic areas, including venture capital. Prereq: senior standing; permission. (Also listed as MGT 742.)

DS 773 - Managing Information Across Enterprise

Credits: 4.00

Provides students with the skills necessary to understand the database environment of the firm and a background to develop moderately complex, stand-alone databases. Gives the foundation to study database development in multiuser, client/server environments. Prereq: senior standing.

DS 774 - E-Business Strategies and Solutions

Credits: 4.00

Covers the concepts, tools, and strategies for understanding the challenges and exploiting the opportunities associated with e-commerce/e-business. Provides an understanding of the technology platform and its components. Additional material covers various models of e-commerce/e-business and its impacts on the firm's performance. Prereq: senior standing.

DS 775 - Corporate Project Experience

Credits: 4.00

Provides real-life experience in organizations. Work in groups on information systems projects identified by sponsoring organizations. Integrate concepts and skills learned in prior business and technology courses. Learn project management concepts, work with project management tools, and use presentation techniques. Prereq: senior standing.

DS 798 - Topics

Credits: 4.00

Special topics; may be repeated. Prereq: permission.

Earth Sciences

ESCI 400 - Freshman Field Seminar

Credits: 1.00

A field introduction for new or prospective majors to New Hampshire's mountains, rivers, estuaries, and beaches. Field excursions (approximately five) are scheduled on Friday afternoons. Cr/F.

ESCI 401 - Dynamic Earth

Credits: 4.00

In this course we study the minerals, rocks and fluids which make up the Earth; the landforms on the surface of the Earth such as mountains, flood plains and stratovolcanoes; and processes such as volcanism, earthquakes, erosion and glaciation that create and alter them. The rock cycle and plate tectonics are used to integrate activity at the surface of the Earth with processes in the Earth's interior. Campus field exercises. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.

ESCI 402 - Earth History

Credits: 4.00

Course provides knowledge and skills necessary to interpret, understand, and appreciate the Earth's 4.6 billion-year history. The first third of the course introduces basic principles, including geological materials, plate tectonics, geological time, fossil preservation, and biological evolution. The remainder of the course tells the story of Earth history through case studies that illustrate scientific methods used to reconstruct critical events in our planet's evolution through time. Topics include the origin of the Earth, the Cambrian explosion of life, building of the Appalachians, assembly of Pangaea, the rise and fall of dinosaurs, the formation of the Rocky Mountains, mammalian evolution, human origins, and Pleistocene glaciation. Students gain experience in making geological observations through laboratory exercises and during one afternoon field trip. Special fee. Lab.

ESCI 405 - Global Environmental Change

Credits: 4.00

Human activity rivals nature as an agent of change in the global environment. Explores evidence of environmental degradation in Earth's crust, hydrosphere, and atmosphere; considers prospects for future sustainable human health, diversity, and economic development. Problem solving through critical analysis of environmental variables. Special fee. Lab.

ESCI 409 - Geology and the Environment

Credits: 4.00

Environmental impact of geologic processes; natural hazards, landslides, earthquakes, volcanoes, flooding, erosion, and sedimentation; land exploitation and site investigations; environmental considerations of water-supply problems; the recovery of energy and mineral resources. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.

ESCI 420 - Our Solar System

Credits: 4.00

Course focuses on the nature and formation of our solar system and the planets associated bodies it contains, with emphasis on the physical and chemical processes significant in the system's origin and evolutionary history. Our approach provides the basis for understanding key differences between the Earth-like terrestrial planets and those farther out in the solar system (the gas giants). We also explore recent discoveries on Mars and moons of the gas giant planets and their implications for the search for life elsewhere in our solar system.

ESCI 444 - Water - How Much is Enough?

Credits: 4.00

The natural distribution of water is not adequate to sustain modern civilization. As water mining and redistribution projects continue to grow in number and size, so do the concomitant stresses on the environment. Through a detailed look at the unique properties of water and the processes that drive the earth's hydrologic cycle; this course will explore the concepts of water stress, water scarcity, and safe yield.

ESCI 501 - Introduction to Oceanography

Credits: 4.00

Introduces students to the four oceanographic disciplines: the geology of the ocean basins, including the creation of oceans and continents. The physics of the seas, including the origin of the ocean currents and their effect on the Earth's climate. The chemistry of the ocean waters, including how the distribution of elements reflects circulation and biology. The life in the ocean, including animals, plants and microbes, and humanity's influence on them. Special fee. Lab.

ESCI 512 - Principles of Mineralogy

Credits: 4.00

Minerals record variations in chemistry, pressure, temperature, and time in the Earth. This course emphasizes minerals and mineral assemblages in rocks, sediments and soils; their identification, symmetry, chemistry, equilibria, and physical properties. Introduction to x-ray diffraction and optical techniques. Prereq: CHEM 403 or 405. Special fee for field trips. Lab.

ESCI 514 - Introduction to Climate

Credits: 3.00

The climate as a system controlled by the fluid, chemical, geological, and biological dynamics of the earth. Investigation of natural and man-made climate change over the period of 100 to 100 million years, including the greenhouse effects, tectonic climate forcing, astronomic (Milankovich) cycles, deep ocean circulation, and biological feedback. How past climate is measured. Prereq: one introductory course in Earth Sciences or permission.

ESCI 530 - Geological Field Methods

Credits: 4.00

An introduction to basic geologic field mapping of bedrock and surficial materials using pace and compass, surveying and GPS techniques. Observational data plotted on topographic maps and/or aerial photographs, accompanied with stratigraphic measurements and sampling sites where appropriate, provide the basis for interpretative maps, cross sections and written reports and a field context for more advanced Earth sciences course work and independent research. One weekend field trip to western or northern New England. Prereq: ESCI 401 or 409, 402. Special fee. Writing intensive.

ESCI 534 - Techniques in Environmental Sciences

Credits: 2.00

Elementary mapping and monitoring methods. Map interpretation, preparation of maps; survey techniques including pace and compass, leveling, and global positioning systems; environmental monitoring. Field lab. Cannot receive credit if taken after receiving credit for ESCI 530 or NR 542. Special fee.

ESCI 561 - Landscape Evolution

Credits: 4.00

Course focuses on the processes that shape the Earth's surface. Lectures discuss the development of landscapes in a wide variety of climatic and geologic settings, with an emphasis on understanding the process mechanics that create landforms and surficial deposits. Labs involve topographic map interpretation, geomorphic data analysis, and short field exercises. Course incorporates one weekend field

trip that explores the landscapes of Cape Cod. Students also gain practical experience in geomorphic research by teaming up and completing a required lab- or field-based project. Prereq: ESCI 401, 402, or permission. Lab. Special fee.

ESCI 595 - Introductory Investigations

Credits: 1.00 to 4.00

Special topics by means of lectures, conferences, assigned readings, and/or field or laboratory work in the areas of geology, hydrology, or oceanography. May be repeated up to a maximum of 8 credits.

ESCI 596 - Introductory Investigations

Credits: 1.00 to 4.00

See description for ESCI 595.

ESCI 614 - Optical Mineralogy and Petrography

Credits: 4.00

Description and classification of igneous, sedimentary, and metamorphic rocks in hand specimen and thin section; optical mineralogy. Prereq: ESCI 512. Special fee. Lab.

ESCI 631 - Structural Geology

Credits: 4.00

Structural units of the Earth's crust and mechanics of their formation. Prereq: ESCI 530. Special fee. Lab and fieldwork.

ESCI 652 - Paleontology

Credits: 4.00

Use of the fossil record to address current problems in Earth history, paleoecology, and evolutionary biology. Examples are drawn from both vertebrates and invertebrates. Lab combines analytical paleontological methods with a systematic survey of important fossil groups. Prereq: ESCI 402 or permission. Special fee. Lab.

ESCI 654 - Fate and Transport in the Environment

Credits: 4.00

Introduces the basic processes controlling the migration and transformation of chemicals in surface water, groundwater, and the atmosphere; basic models of advection, dispersion, retardation, and attenuation. Prereq: CHEM 404, MATH 426.

ESCI 658 - Principles of Earth, Ocean, and Atmospheric Dynamics

Credits: 4.00

Introduces the basic elements of kinematics and dynamics, relevant to processes important in earth, ocean, and atmospheric sciences. Reviews particle dynamics and introduces continuum mechanics of the solid earth, hydrologic, and environmental fluid systems. Includes biweekly laboratories and homework problem recitation sessions. Prereq: MATH 426, PHYS 407.

ESCI 705 - Principles of Hydrology

Credits: 4.00

Basic physical principles important in the land phase of the hydrologic cycle, including precipitation, snowmelt, infiltration and soil physics, evapotranspiration, and surface and subsurface flow to streams. Problems of measurement and aspects of statistical treatment of hydrologic data. Field trips. Prereq: MATH 425 (or MATH 424) and PHYS 402. Special fee. Lab. Writing intensive.

ESCI 710 - Groundwater Hydrology

Credits: 4.00

Principles for fluid flow in porous media with emphasis on occurrence, location, and development of groundwater but with consideration of groundwater as a transporting medium. Major topics include well hydraulics, regional groundwater flow, exploration techniques, and chemical quality. Laboratory exercises involve use of fluid, electrical, and digital computer models to illustrate key concepts. Prereq: ESCI 705 or permission. Special fee. Lab.

ESCI 715 - Global Atmospheric Chemistry

Credits: 3.00

Introduction to the principles of atmospheric chemistry and their relationship to biogeochemical cycles, climate, and global change. Focus is on understanding the basic physical and chemical processes that determine the trace gas distribution in the global troposphere. An introduction to atmospheric vertical structure and global circulation dynamics provides the foundation. Then chemical cycles of important C, S, N molecules are examined, including their possible perturbation by human activities. Basic photochemical processes are outlined, particularly with respect to reactive nitrogen, hydrocarbons, and the production/destruction of ozone. Prereq: one year chemistry.

ESCI #716 - Atmospheric Aerosol and Precipitation Chemistry

Credits: 3.00

Describes and examines the processes determining the chemical and physical characteristics of atmospheric aerosol particles and precipitation. Important foci include the role of aerosol particles in the long-range transport and deposition of geochemical materials, optical properties of these particles and their impact on the global radiative balance, cloud micro-physical processes relevant to both radiative effects and precipitation scavenging, and heterogeneous reactions at the solid-liquid, solid-gas, and liquid-gas interfaces in the atmosphere. Major segments of the course are devoted to the removal of gases and particles from the atmosphere by wet and dry deposition processes. Focuses on processes active in the troposphere, but important differences between the troposphere and stratosphere, radiative effects of stratospheric aerosol particles, and exchange between the troposphere and stratosphere are addressed. Prereq: one year college chemistry or permission.

ESCI 717 - Macro-scale Hydrology I

Credits: 3.00

Focus on the numerous roles of water in the Earth system. Topics include the global water cycle, impacts of the greenhouse effect and other anthropogenic disturbances, hydrologic modeling, soil-vegetation-atmosphere transfer schemes, water quality, GIS and water-related remote sensing tools, global freshwater resources. Course is organized around formal lectures, in-class discussion, student presentations, class projects. Prereq: ESCI 705 or permission. (Offered alternate years.)

ESCI 718 - Macro-Scale Hydrology II

Credits: 3.00

A continuation of ESCI 717. Students and instructor jointly select a research topic in macro-scale hydrology to be analyzed in-depth during the course of the semester. A primary goal is the preparation of a manuscript for publication in a refereed scientific journal. Extensive library research, reading of recent and relevant scientific literature, technical analysis and writing. Prereq: ESCI 717. (Offered alternate years.)

ESCI 726 - Metamorphic Petrology

Credits: 4.00

The metamorphism of pelitic, mafic, and calc silicate rocks as determined from field, petrographic, mineral chemistry, experimental, and theoretical studies. Closed- and open-system reactions, multi-systems, reaction space. Calculation of pressure-temperature time paths. Prereq: mineralogy; petrography; adequate background in calculus, chemistry, and physics. Field trips. Special fee. Lab. (Offered in alternate years with ESCI 725.) Writing intensive.

ESCI 734 - Geophysics

Credits: 4.00

The structure of the solid Earth, including the continental and oceanic lithosphere and the deep interior as revealed by investigations of seismic waves, the Earth's gravitational and magnetic fields, heat flow, and earthquakes. Prereq: ESCI 401; one year of calculus; one year of college physics; \or permission. Special fee. Lab.

ESCI 741 - Geochemistry

Credits: 4.00

Course focuses on the application of chemical principles to solve problems in the Earth sciences. Students learn the chemical tools of thermodynamics and kinetics, element partitioning, conservation of mass, and isotope geochemistry. Explore geochemical properties/processes in the deep Earth and the Earth surface, atmosphere and marine systems, and cosmo-chemistry and investigate the interactions between these components of the Earth system. Prereq: ESCI 512 or permission. Lab. Writing intensive.

ESCI 745 - Isotope Geochemistry

Credits: 4.00

Course focuses on the application of radiogenic, radioactive and stable isotopes to improve students' knowledge about the processes and timescales relevant to the formation of the planet and solar system, the evolution of the Earth system and interactions in the hydrosphere and biosphere. Topics include geochronology, tracer applications, Earth surface applications, as well as applications in the hydrosphere and biosphere. Systems discussed include the classic radiogenic systems (K-Ar, Rb-Sr, Sm-Nd, Lu-Hf and U-Th-Pb), traditional (H, C, N, O) as well as nontraditional (e.g., Mg, Ca, Fe) stable isotope systems, and radioactive isotopes (e.g., radiocarbon). Course consists of lecture, where students are exposed to these applications, and a lab section to work through any questions on the homework assignments, discuss relevant papers from the literature, and carry out a project. Prereq: ESCI 741 or permission. Special fee. Lab.

ESCI 746 - Analytical Geochemistry

Credits: 4.00

Theory, instrumentation, and applications of analytical methods in geochemistry. Prereq: one year of chemistry or geochemistry; \or permission. Special fee. Lab.

ESCI 747 - Aqueous Geochemistry

Credits: 4.00

Processes that determine the geochemical characteristics of water bodies. Emphasis on the geochemical continuum of terrestrial water and its geochemical evolution. Topics include the influence of cyclic salts, the nature of weathering reactions, the CO₂-CaCO₃ system, the formation and dissolution of salts and authigenic mineral formulation. Prereq: one year of chemistry or geochemistry; \or permission. Lab.

ESCI 750 - Biological Oceanography

Credits: 4.00

Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ZOOL 750.) Special fee. Lab. (Not offered every year.)

ESCI 752 - Chemical Oceanography

Credits: 3.00

Water structure, chemical composition and equilibrium models, gas exchange, biological effects on chemistry, trace metals, and analytical methods. Prereq: permission. Optional 1 credit lab (see ESCI 752L).

ESCI 754 - Sedimentology

Credits: 4.00

This course focuses on modern sedimentary processes and ancient sedimentary records through the examination, identification, and interpretation of sediments and sedimentary rocks. Topics such as sediment transport mechanisms, depositional environments, and time in sedimentary records will provide a strong framework for any student studying Earth processes and sedimentary systems. Prereq: ESCI 401 or 402 or 501, and 512; or permission. Special fee. Lab and field trips.

ESCI 756 - Geotectonics

Credits: 3.00

The geological record of plate tectonics past and present. The first part of the course focuses on modern tectonic settings with an emphasis on plate geometries, geodynamical processes, and sedimentary products. The second part of the course focuses on reconstructing ancient tectonic settings with an emphasis on methodology (paleomagnetism, basin analysis, provenance) and case studies (e.g. India-Asia collision). Field trip. Prereq: ESCI 614 or ESCI 631 or permission. Special fee.

ESCI 758 - Introductory Physical Oceanography

Credits: 3.00

Descriptive treatment of atmosphere-ocean interaction; general wind-driven and thermo-haline ocean circulation; waves and tides; continental shelf and near-shore processes; instrumentation and methods used in ocean research. Simplified conceptual models demonstrate the important principles. Prereq: college physics; ESCI 501;/or permission.

ESCI 759 - Geological Oceanography

Credits: 4.00

Major geological features and processes of the ocean floor; geological and geophysical methods; plate tectonics. Prereq: two semesters each of calculus, physics, and geology;/or permission. Lab. Writing intensive.

ESCI 762 - Glacial Geology

Credits: 4.00

Course provides a survey of glacier dynamics and processes, with an emphasis on understanding the origin and significance of glacial deposits and landforms. The first half of the course examines the physics of glaciers, and the second half focuses on glacial geologic processes. Lectures discuss glaciers and ice sheets as key agents of large-scale geomorphic change, as well as their central role in the Earth's past and present climate system. Labs involve analysis of glaciological data, glacial-geologic map interpretation, and short field exercises. Course incorporates one mandatory weekend field trip that explores the glacial landscapes of New England. Prereq: ESCI 561 or permission. Special fee. Lab. Writing intensive.

ESCI 764 - Data Analysis in Earth System Science

Credits: 4.00

Analytical and numerical methods used to understand geospatial and time series data sets encountered in Earth system science research. Students develop skills in data analysis, primarily through writing and modifying their own computer programs, focused on particular aspects of real data sets. Understanding various data types, formats, and projections, and how to handle them, are also covered. Prereq: one year calculus, one year chemistry, basic statistics;/or permission.

ESCI 765 - Paleoclimatology

Credits: 3.00

Course reviews the study of past changes in the Earth's climate system. Main discussion topics include astronomical theories of ice ages, Quaternary dating methods, Antarctic and Greenland ice core records, greenhouse gases, marine-based climate proxies, glacial mega-floods, and linkages between ocean

circulation and abrupt climate change. Emphasis on climate variability during the Quaternary period (the last approximately 1.8 million years), a time interval dominated by cycles of global glaciation. Lectures include discussion of recent and emerging scientific papers in order to keep pace with the latest findings in paleoclimatic research. Writing intensive.

ESCI 766 - Volcanology

Credits: 4.00

Provides a comprehensive overview of volcanic processes and their influences on planetary evolution and modern-day Earth systems. Lectures discuss the generation and properties of magma, tectonic setting of volcanism, eruption styles, volcanic landforms and products, monitoring of active volcanoes, volcanic hazards, and volcanism on other planets. Laboratory topics include modeling volcanic processes, hand-sample observation, topographic map interpretation, volcanographical data analysis, and two afternoon field trips. As volcanology is a rapidly developing field of active research, the course incorporates discussions of recent and emerging scientific papers from the literature and student-led updates of ongoing volcanic activity. Prereq: one year of calculus and one ESCI course or permission. Special fee. Lab.

ESCI 770 - Fundamentals of Ocean Mapping

Credits: 4.00

Introduces the principles and practice of hydrography and ocean mapping. Methods for the measurement and definition of the configuration of the bottoms and adjacent land areas of oceans, lakes, rivers, estuaries, harbors and other water areas, and the tides or water levels and currents that occur in those bodies of water. Prereq: PHYS 407-408. (Also listed as OE 770.) Lab.

ESCI 771 - Geodesy and Positioning for Ocean Mapping

Credits: 4.00

The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as OE 771.)

ESCI 795 - Topics

Credits: 1.00 to 4.00

Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods.

ESCI 796 - Topics

Credits: 1.00 to 4.00

See description for ESCI 795.

ESCI 797 - Colloquium

Credits:

Presentation of recent research in the earth sciences by guest speakers and department faculty. May be taken four times. Cr/F.

ESCI 799 - Senior Thesis

Credits: 1.00 to 4.00

Students work under the direction of a faculty sponsor to plan and carry out independent research resulting

in an oral presentation and a written thesis. Two-semester sequence; IA (continuous course) grade given at end of first semester. May be repeated to a maximum of 4 credits. Cr/F.

Earth Sciences

ESCI 400 - Freshman Field Seminar

Credits: 1.00

A field introduction for new or prospective majors to New Hampshire's mountains, rivers, estuaries, and beaches. Field excursions (approximately five) are scheduled on Friday afternoons. Cr/F.

ESCI 401 - Dynamic Earth

Credits: 4.00

In this course we study the minerals, rocks and fluids which make up the Earth; the landforms on the surface of the Earth such as mountains, flood plains and stratovolcanoes; and processes such as volcanism, earthquakes, erosion and glaciation that create and alter them. The rock cycle and plate tectonics are used to integrate activity at the surface of the Earth with processes in the Earth's interior. Campus field exercises. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.

ESCI 402 - Earth History

Credits: 4.00

Course provides knowledge and skills necessary to interpret, understand, and appreciate the Earth's 4.6 billion-year history. The first third of the course introduces basic principles, including geological materials, plate tectonics, geological time, fossil preservation, and biological evolution. The remainder of the course tells the story of Earth history through case studies that illustrate scientific methods used to reconstruct critical events in our planet's evolution through time. Topics include the origin of the Earth, the Cambrian explosion of life, building of the Appalachians, assembly of Pangaea, the rise and fall of dinosaurs, the formation of the Rocky Mountains, mammalian evolution, human origins, and Pleistocene glaciation. Students gain experience in making geological observations through laboratory exercises and during one afternoon field trip. Special fee. Lab.

ESCI 405 - Global Environmental Change

Credits: 4.00

Human activity rivals nature as an agent of change in the global environment. Explores evidence of environmental degradation in Earth's crust, hydrosphere, and atmosphere; considers prospects for future sustainable human health, diversity, and economic development. Problem solving through critical analysis of environmental variables. Special fee. Lab.

ESCI 409 - Geology and the Environment

Credits: 4.00

Environmental impact of geologic processes; natural hazards, landslides, earthquakes, volcanoes, flooding, erosion, and sedimentation; land exploitation and site investigations; environmental considerations of water-supply problems; the recovery of energy and mineral resources. Special fee. Lab. Students may not receive credit for both ESCI 401 and ESCI 409.

ESCI 420 - Our Solar System

Credits: 4.00

Course focuses on the nature and formation of our solar system and the planets associated bodies it contains, with emphasis on the physical and chemical processes significant in the system's origin and evolutionary history. Our approach provides the basis for understanding key differences between the Earth-like terrestrial planets and those farther out in the solar system (the gas giants). We also explore recent discoveries on Mars and moons of the gas giant planets and their implications for the search for life elsewhere in our solar system.

ESCI 444 - Water - How Much is Enough?

Credits: 4.00

The natural distribution of water is not adequate to sustain modern civilization. As water mining and redistribution projects continue to grow in number and size, so do the concomitant stresses on the environment. Through a detailed look at the unique properties of water and the processes that drive the earth's hydrologic cycle; this course will explore the concepts of water stress, water scarcity, and safe yield.

ESCI 501 - Introduction to Oceanography

Credits: 4.00

Introduces students to the four oceanographic disciplines: the geology of the ocean basins, including the creation of oceans and continents. The physics of the seas, including the origin of the ocean currents and their effect on the Earth's climate. The chemistry of the ocean waters, including how the distribution of elements reflects circulation and biology. The life in the ocean, including animals, plants and microbes, and humanity's influence on them. Special fee. Lab.

ESCI 512 - Principles of Mineralogy

Credits: 4.00

Minerals record variations in chemistry, pressure, temperature, and time in the Earth. This course emphasizes minerals and mineral assemblages in rocks, sediments and soils; their identification, symmetry, chemistry, equilibria, and physical properties. Introduction to x-ray diffraction and optical techniques. Prereq: CHEM 403 or 405. Special fee for field trips. Lab.

ESCI 514 - Introduction to Climate

Credits: 3.00

The climate as a system controlled by the fluid, chemical, geological, and biological dynamics of the earth. Investigation of natural and man-made climate change over the period of 100 to 100 million years, including the greenhouse effects, tectonic climate forcing, astronomic (Milankovich) cycles, deep ocean circulation, and biological feedback. How past climate is measured. Prereq: one introductory course in Earth Sciences or permission.

ESCI 530 - Geological Field Methods

Credits: 4.00

An introduction to basic geologic field mapping of bedrock and surficial materials using pace and compass, surveying and GPS techniques. Observational data plotted on topographic maps and/or aerial photographs, accompanied with stratigraphic measurements and sampling sites where appropriate, provide the basis for interpretative maps, cross sections and written reports and a field context for more advanced Earth sciences course work and independent research. One weekend field trip to western or northern New England. Prereq: ESCI 401 or 409, 402. Special fee. Writing intensive.

ESCI 534 - Techniques in Environmental Sciences

Credits: 2.00

Elementary mapping and monitoring methods. Map interpretation, preparation of maps; survey techniques including pace and compass, leveling, and global positioning systems; environmental monitoring. Field lab. Cannot receive credit if taken after receiving credit for ESCI 530 or NR 542. Special fee.

ESCI 561 - Landscape Evolution

Credits: 4.00

Course focuses on the processes that shape the Earth's surface. Lectures discuss the development of landscapes in a wide variety of climatic and geologic settings, with an emphasis on understanding the process mechanics that create landforms and surficial deposits. Labs involve topographic map interpretation, geomorphic data analysis, and short field exercises. Course incorporates one weekend field

trip that explores the landscapes of Cape Cod. Students also gain practical experience in geomorphic research by teaming up and completing a required lab- or field-based project. Prereq: ESCI 401, 402, or permission. Lab. Special fee.

ESCI 595 - Introductory Investigations

Credits: 1.00 to 4.00

Special topics by means of lectures, conferences, assigned readings, and/or field or laboratory work in the areas of geology, hydrology, or oceanography. May be repeated up to a maximum of 8 credits.

ESCI 596 - Introductory Investigations

Credits: 1.00 to 4.00

See description for ESCI 595.

ESCI 614 - Optical Mineralogy and Petrography

Credits: 4.00

Description and classification of igneous, sedimentary, and metamorphic rocks in hand specimen and thin section; optical mineralogy. Prereq: ESCI 512. Special fee. Lab.

ESCI 631 - Structural Geology

Credits: 4.00

Structural units of the Earth's crust and mechanics of their formation. Prereq: ESCI 530. Special fee. Lab and fieldwork.

ESCI 652 - Paleontology

Credits: 4.00

Use of the fossil record to address current problems in Earth history, paleoecology, and evolutionary biology. Examples are drawn from both vertebrates and invertebrates. Lab combines analytical paleontological methods with a systematic survey of important fossil groups. Prereq: ESCI 402 or permission. Special fee. Lab.

ESCI 654 - Fate and Transport in the Environment

Credits: 4.00

Introduces the basic processes controlling the migration and transformation of chemicals in surface water, groundwater, and the atmosphere; basic models of advection, dispersion, retardation, and attenuation. Prereq: CHEM 404, MATH 426.

ESCI 658 - Principles of Earth, Ocean, and Atmospheric Dynamics

Credits: 4.00

Introduces the basic elements of kinematics and dynamics, relevant to processes important in earth, ocean, and atmospheric sciences. Reviews particle dynamics and introduces continuum mechanics of the solid earth, hydrologic, and environmental fluid systems. Includes biweekly laboratories and homework problem recitation sessions. Prereq: MATH 426, PHYS 407.

ESCI 705 - Principles of Hydrology

Credits: 4.00

Basic physical principles important in the land phase of the hydrologic cycle, including precipitation, snowmelt, infiltration and soil physics, evapotranspiration, and surface and subsurface flow to streams. Problems of measurement and aspects of statistical treatment of hydrologic data. Field trips. Prereq: MATH 425 (or MATH 424) and PHYS 402. Special fee. Lab. Writing intensive.

ESCI 710 - Groundwater Hydrology

Credits: 4.00

Principles for fluid flow in porous media with emphasis on occurrence, location, and development of groundwater but with consideration of groundwater as a transporting medium. Major topics include well hydraulics, regional groundwater flow, exploration techniques, and chemical quality. Laboratory exercises involve use of fluid, electrical, and digital computer models to illustrate key concepts. Prereq: ESCI 705 or permission. Special fee. Lab.

ESCI 715 - Global Atmospheric Chemistry

Credits: 3.00

Introduction to the principles of atmospheric chemistry and their relationship to biogeochemical cycles, climate, and global change. Focus is on understanding the basic physical and chemical processes that determine the trace gas distribution in the global troposphere. An introduction to atmospheric vertical structure and global circulation dynamics provides the foundation. Then chemical cycles of important C, S, N molecules are examined, including their possible perturbation by human activities. Basic photochemical processes are outlined, particularly with respect to reactive nitrogen, hydrocarbons, and the production/destruction of ozone. Prereq: one year chemistry.

ESCI #716 - Atmospheric Aerosol and Precipitation Chemistry

Credits: 3.00

Describes and examines the processes determining the chemical and physical characteristics of atmospheric aerosol particles and precipitation. Important foci include the role of aerosol particles in the long-range transport and deposition of geochemical materials, optical properties of these particles and their impact on the global radiative balance, cloud micro-physical processes relevant to both radiative effects and precipitation scavenging, and heterogeneous reactions at the solid-liquid, solid-gas, and liquid-gas interfaces in the atmosphere. Major segments of the course are devoted to the removal of gases and particles from the atmosphere by wet and dry deposition processes. Focuses on processes active in the troposphere, but important differences between the troposphere and stratosphere, radiative effects of stratospheric aerosol particles, and exchange between the troposphere and stratosphere are addressed. Prereq: one year college chemistry or permission.

ESCI 717 - Macro-scale Hydrology I

Credits: 3.00

Focus on the numerous roles of water in the Earth system. Topics include the global water cycle, impacts of the greenhouse effect and other anthropogenic disturbances, hydrologic modeling, soil-vegetation-atmosphere transfer schemes, water quality, GIS and water-related remote sensing tools, global freshwater resources. Course is organized around formal lectures, in-class discussion, student presentations, class projects. Prereq: ESCI 705 or permission. (Offered alternate years.)

ESCI 718 - Macro-Scale Hydrology II

Credits: 3.00

A continuation of ESCI 717. Students and instructor jointly select a research topic in macro-scale hydrology to be analyzed in-depth during the course of the semester. A primary goal is the preparation of a manuscript for publication in a refereed scientific journal. Extensive library research, reading of recent and relevant scientific literature, technical analysis and writing. Prereq: ESCI 717. (Offered alternate years.)

ESCI 726 - Metamorphic Petrology

Credits: 4.00

The metamorphism of pelitic, mafic, and calc silicate rocks as determined from field, petrographic, mineral chemistry, experimental, and theoretical studies. Closed- and open-system reactions, multi-systems, reaction space. Calculation of pressure-temperature time paths. Prereq: mineralogy; petrography; adequate background in calculus, chemistry, and physics. Field trips. Special fee. Lab. (Offered in alternate years with ESCI 725.) Writing intensive.

ESCI 734 - Geophysics

Credits: 4.00

The structure of the solid Earth, including the continental and oceanic lithosphere and the deep interior as revealed by investigations of seismic waves, the Earth's gravitational and magnetic fields, heat flow, and earthquakes. Prereq: ESCI 401; one year of calculus; one year of college physics; \or permission. Special fee. Lab.

ESCI 741 - Geochemistry

Credits: 4.00

Course focuses on the application of chemical principles to solve problems in the Earth sciences. Students learn the chemical tools of thermodynamics and kinetics, element partitioning, conservation of mass, and isotope geochemistry. Explore geochemical properties/processes in the deep Earth and the Earth surface, atmosphere and marine systems, and cosmo-chemistry and investigate the interactions between these components of the Earth system. Prereq: ESCI 512 or permission. Lab. Writing intensive.

ESCI 745 - Isotope Geochemistry

Credits: 4.00

Course focuses on the application of radiogenic, radioactive and stable isotopes to improve students' knowledge about the processes and timescales relevant to the formation of the planet and solar system, the evolution of the Earth system and interactions in the hydrosphere and biosphere. Topics include geochronology, tracer applications, Earth surface applications, as well as applications in the hydrosphere and biosphere. Systems discussed include the classic radiogenic systems (K-Ar, Rb-Sr, Sm-Nd, Lu-Hf and U-Th-Pb), traditional (H, C, N, O) as well as nontraditional (e.g., Mg, Ca, Fe) stable isotope systems, and radioactive isotopes (e.g., radiocarbon). Course consists of lecture, where students are exposed to these applications, and a lab section to work through any questions on the homework assignments, discuss relevant papers from the literature, and carry out a project. Prereq: ESCI 741 or permission. Special fee. Lab.

ESCI 746 - Analytical Geochemistry

Credits: 4.00

Theory, instrumentation, and applications of analytical methods in geochemistry. Prereq: one year of chemistry or geochemistry; \or permission. Special fee. Lab.

ESCI 747 - Aqueous Geochemistry

Credits: 4.00

Processes that determine the geochemical characteristics of water bodies. Emphasis on the geochemical continuum of terrestrial water and its geochemical evolution. Topics include the influence of cyclic salts, the nature of weathering reactions, the CO₂-CaCO₃ system, the formation and dissolution of salts and authigenic mineral formulation. Prereq: one year of chemistry or geochemistry; \or permission. Lab.

ESCI 750 - Biological Oceanography

Credits: 4.00

Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ZOOL 750.) Special fee. Lab. (Not offered every year.)

ESCI 752 - Chemical Oceanography

Credits: 3.00

Water structure, chemical composition and equilibrium models, gas exchange, biological effects on chemistry, trace metals, and analytical methods. Prereq: permission. Optional 1 credit lab (see ESCI 752L).

ESCI 754 - Sedimentology

Credits: 4.00

This course focuses on modern sedimentary processes and ancient sedimentary records through the examination, identification, and interpretation of sediments and sedimentary rocks. Topics such as sediment transport mechanisms, depositional environments, and time in sedimentary records will provide a strong framework for any student studying Earth processes and sedimentary systems. Prereq: ESCI 401 or 402 or 501, and 512; or permission. Special fee. Lab and field trips.

ESCI 756 - Geotectonics

Credits: 3.00

The geological record of plate tectonics past and present. The first part of the course focuses on modern tectonic settings with an emphasis on plate geometries, geodynamical processes, and sedimentary products. The second part of the course focuses on reconstructing ancient tectonic settings with an emphasis on methodology (paleomagnetism, basin analysis, provenance) and case studies (e.g. India-Asia collision). Field trip. Prereq: ESCI 614 or ESCI 631 or permission. Special fee.

ESCI 758 - Introductory Physical Oceanography

Credits: 3.00

Descriptive treatment of atmosphere-ocean interaction; general wind-driven and thermo-haline ocean circulation; waves and tides; continental shelf and near-shore processes; instrumentation and methods used in ocean research. Simplified conceptual models demonstrate the important principles. Prereq: college physics; ESCI 501;/or permission.

ESCI 759 - Geological Oceanography

Credits: 4.00

Major geological features and processes of the ocean floor; geological and geophysical methods; plate tectonics. Prereq: two semesters each of calculus, physics, and geology;/or permission. Lab. Writing intensive.

ESCI 762 - Glacial Geology

Credits: 4.00

Course provides a survey of glacier dynamics and processes, with an emphasis on understanding the origin and significance of glacial deposits and landforms. The first half of the course examines the physics of glaciers, and the second half focuses on glacial geologic processes. Lectures discuss glaciers and ice sheets as key agents of large-scale geomorphic change, as well as their central role in the Earth's past and present climate system. Labs involve analysis of glaciological data, glacial-geologic map interpretation, and short field exercises. Course incorporates one mandatory weekend field trip that explores the glacial landscapes of New England. Prereq: ESCI 561 or permission. Special fee. Lab. Writing intensive.

ESCI 764 - Data Analysis in Earth System Science

Credits: 4.00

Analytical and numerical methods used to understand geospatial and time series data sets encountered in Earth system science research. Students develop skills in data analysis, primarily through writing and modifying their own computer programs, focused on particular aspects of real data sets. Understanding various data types, formats, and projections, and how to handle them, are also covered. Prereq: one year calculus, one year chemistry, basic statistics;/or permission.

ESCI 765 - Paleoclimatology

Credits: 3.00

Course reviews the study of past changes in the Earth's climate system. Main discussion topics include astronomical theories of ice ages, Quaternary dating methods, Antarctic and Greenland ice core records, greenhouse gases, marine-based climate proxies, glacial mega-floods, and linkages between ocean

circulation and abrupt climate change. Emphasis on climate variability during the Quaternary period (the last approximately 1.8 million years), a time interval dominated by cycles of global glaciation. Lectures include discussion of recent and emerging scientific papers in order to keep pace with the latest findings in paleoclimatic research. Writing intensive.

ESCI 766 - Volcanology

Credits: 4.00

Provides a comprehensive overview of volcanic processes and their influences on planetary evolution and modern-day Earth systems. Lectures discuss the generation and properties of magma, tectonic setting of volcanism, eruption styles, volcanic landforms and products, monitoring of active volcanoes, volcanic hazards, and volcanism on other planets. Laboratory topics include modeling volcanic processes, hand-sample observation, topographic map interpretation, volcanographical data analysis, and two afternoon field trips. As volcanology is a rapidly developing field of active research, the course incorporates discussions of recent and emerging scientific papers from the literature and student-led updates of ongoing volcanic activity. Prereq: one year of calculus and one ESCI course or permission. Special fee. Lab.

ESCI 770 - Fundamentals of Ocean Mapping

Credits: 4.00

Introduces the principles and practice of hydrography and ocean mapping. Methods for the measurement and definition of the configuration of the bottoms and adjacent land areas of oceans, lakes, rivers, estuaries, harbors and other water areas, and the tides or water levels and currents that occur in those bodies of water. Prereq: PHYS 407-408. (Also listed as OE 770.) Lab.

ESCI 771 - Geodesy and Positioning for Ocean Mapping

Credits: 4.00

The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as OE 771.)

ESCI 795 - Topics

Credits: 1.00 to 4.00

Geologic, hydrologic, and oceanographic problems and independent studies by means of conferences, assigned readings, and field or laboratory work fitted by ESCI faculty to individual student needs; or new or specialized courses. Topics include geochemistry; geomorphology; geophysics; glaciology; groundwater; structural and regional geology; crystallography; mineralogy; petrology; thermodynamics; ore deposits; earth resource policy; paleontology; sedimentation; stratigraphy; water resources management; chemical, physical, and geological oceanography; earth systems. Also, senior synthesis and earth science teaching methods.

ESCI 796 - Topics

Credits: 1.00 to 4.00

See description for ESCI 795.

ESCI 797 - Colloquium

Credits:

Presentation of recent research in the earth sciences by guest speakers and department faculty. May be taken four times. Cr/F.

ESCI 799 - Senior Thesis

Credits: 1.00 to 4.00

Students work under the direction of a faculty sponsor to plan and carry out independent research resulting

in an oral presentation and a written thesis. Two-semester sequence; IA (continuous course) grade given at end of first semester. May be repeated to a maximum of 4 credits. Cr/F.

Economics-UNHM

ECN 411 - Introduction to Macroeconomic Principles

Credits: 4.00

Studies how an economy functions. Develops measures and theories of economic performance to study such issues as unemployment, inflation, international trade and finance, and the level of national production. Examines government policies designed to correct for unemployment and inflation with close attention to the use of fiscal and monetary policies in the U.S. No credit for students who have received credit for ECON 401.

ECN 411W - Introduction to Macroeconomic Principles

Credits: 4.00

Studies how an economy functions. Develops measures and theories of economic performance to study such issues as unemployment, inflation, international trade and finance, and the level of national production. Examines government policies designed to correct for unemployment and inflation with close attention to the use of fiscal and monetary policies in the U.S. No credit for students who have received credit for ECON 401. Writing Intensive.

ECN 412 - Introduction to Microeconomic Principles

Credits: 4.00

Studies the behavior and interaction of fundamental decision-making units in an economy, especially consumers and business firms. Applies such economic principles as scarcity, supply and demand, and elasticity to a variety of social issues. Topics include the resource allocation problems of households and business firms, economic theories of social problems (such as crime, divorce, and discrimination), and the economic implications of government policies affecting the environment, the workplace, and industrial organization. No credit for students who have received credit for ECON 402.

ECN 412W - Introduction to Microeconomic Principles

Credits: 4.00

Studies the behavior and interaction of fundamental decision-making units in an economy, especially consumers and business firms. Applies such economic principles as scarcity, supply and demand, and elasticity to a variety of social issues. Topics include the resource allocation problems of households and business firms, economic theories of social problems (such as crime, divorce, and discrimination), and the economic implications of government policies affecting the environment, the workplace, and industrial organization. No credit for students who have received credit for ECON 402. Writing Intensive.

ECN 444 - Power

Credits: 4.00

What is "power"? How does it originate and influence events? Are there, or should there be, limits to power? How does power (or powerlessness) manifest itself within your life and community? This semester we will explore the concept of "power", including its sources, deployment and effects, using a variety of sources, methods, and disciplinary perspectives. To raise and address questions about power, we will carefully read, view, discuss and listen to primary source material related to our topic including texts, film, art and music. Course content includes the perspective of philosophers (Friedrich Nietzsche, Thomas Hobbes), dramatists (Samuel Beckett, Christopher Marlowe) scientists (Rene Descartes, Albert Einstein), essayists (Ralph Waldo Emerson), auto-ethnographers (Carolina Maria DeJesus), as well as the work of historians, economists, psychologists, and scholars working in the fields of communication and gender studies. In addition students will design a service learning project(s) to research aspects of power and/or powerlessness within their life and community. Writing intensive.

ECN 625 - Regulation of Business

Credits: 4.00

Examines the impact of governmental regulatory agencies and regulatory legislation on the operation of business in the United States. Topics include: the theory of regulation; the regulation of natural monopoly; antitrust economics; deregulation; social regulation, and interaction with regulatory agencies. Prereq: ADM 400, ECN 412. Not open to first year students except with instructor's permission.

ECN 635 - Money, Banking and Macroeconomic Activity

Credits: 4.00

A study of the financial sector of the economy including commercial banks, thrifts, and other depository institutions. Examines the meaning and determinants of the money supply, credit and interest rates. Close attention paid to the role of the Federal Reserve and the economic effects of its monetary policy. Prereq: ECN 411, ECN 412.

ECN 640 - Business Law and Economics

Credits: 4.00

A study of the legal environment of business. Emphasis is on using economic analysis to examine laws of property, contract, and tort affecting business. Includes the ethical foundations of law and ethical issues involving business. Specific topics may include commercial free speech, white collar crime and managerial responsibility, product liability, cyberlaw, copyright, trademark and patent law. Prereq: ADM 400, ECN 412, and sophomore standing or permission of the instructor. Writing intensive.

ECN 650 - Economics for Managers

Credits: 4.00

Examines how economic principles can be applied to resource allocation problems confronted by managers in a variety of industry settings. Emphasis on both theory and application. Topics include cost analysis, production decisions, and pricing policies of business managers within perfectly competitive, monopolistic, oligopolistic, and monopolistically competitive environments. Prereq: ADM 400, ECN 412 and sophomore standing or permission of instructor.

Education

EDUC 444 - Learning to Learn

Credits: 4.00

The central issue in this seminar is the nature of learning. What does it mean to learn? To be a learner? What role does learning play in students' own lives - both in and out of school? Students consider the roles of the environment, the teacher, and the learner in thinking about what it means to learn. Through readings, discussions, classroom activities, investigations and observations students develop their own beliefs and understandings about what it means to learn. Students in the course explore specific topics related to learning, including the nature of intelligence and motivation, and the roles of attention, memory and context in learning. They consider both formal and informal learning environments as well as structures that support or impede learning. Students work together in groups to solve problems and present information to others. They use reflection as a tool for learning and increase their understanding of themselves as learners. Writing intensive.

EDUC 444A - Reflective Learning: Creativity, Motivation and Learning Style

Credits: 4.00

Course addresses the roles of the environment, the teacher, and the learner in thinking about what it means to learn. Specific topics related to learning, including the nature of creativity, intelligence and motivation, and the roles of attention, memory, culture and context in learning are covered. Students work reflectively as well as together in groups to solve problems, present information to each other, and address each others questions. Writing intensive

EDUC 444B - Be the Change You Want to See: Active Citizenship in a Multicultural World

Credits: 4.00

This is a first-year inquiry course intended primarily for students participating in the Common Purposes residential living program. The course offers multidisciplinary content focused on active citizenship in a pluralistic democracy. The primary organizing concept of the course is community; assignments focus on deliberative dialogue, public reasoning , collective action, and social justice. The course is taught as a seminar and includes on-campus and off-campus applied projects.

EDUC 451 - Welding and Fabrication Technology

Credits: 4.00

Processes and procedures of welding including: Shielded Metal Arc Welding (SMAW), Oxyacetylene Welding (OAW), Oxy-Fuel Gas Cutting (OFC-A), Gas Metal Arc Welding (GMAW), Plasma Arc Cutting (PAC) and Tungsten Arc Welding (GTAW). Welding metallurgy and control of distortion. Special fee. Prereq: permission. 2 lec/2-hr rec.

EDUC 461 - Internal Combustion Engines I

Credits: 4.00

Internal combustion engines (spark-ignited and diesel) and their subsystems with emphasis on their design, how they function, preventive maintenance, and troubleshooting. 2 lec/2-hr rec.

EDUC 462 - Internal Combustion Engines II

Credits: 4.00

Advanced engine principles and theory. Detailed major failure analysis and overhaul techniques. Prereq: permission, AM 261, AOE 461, or EDUC 461. 2 lec/2 rec.

EDUC 470 - Residential Electricity

Credits: 2.00

Electrical principles, laws, and installation with emphasis on the National Electrical Code. While modeled at the residential level, concepts and terminology will be applicable to the commercial and light industrial sectors as well. Concepts and methodologies will be supported with design and when appropriate, hands-on application to enhance the learning environment. 2 lec/2-hr rec. (half semester course.) No credit earned if credit earned for the second half of CT 227.

EDUC 475 - Building Science/Residential Construction**Credits: 4.00**

Studies the interrelationship of physical principles that affect the functionality and life span of a building. The materials and methodologies of residential construction. 3 lec/2-hr lab. Special fee.

EDUC 500 - Exploring Teaching**Credits: 4.00**

For students considering a teaching career. In-school experiences to develop introductory skills in teaching. On-site seminars for analysis and evaluation. Assessment and advising related to teaching as a career. Prerequisite for further work toward teacher licensure. Minimum of 7 hours a week, plus travel time, required. Prereq: permission. Cr/F.

EDUC 506 - Service Learning Experiences in Literacy**Credits: 1.00**

Supports students engaged in school-based literacy tutoring as service learning experiences. Explores tutoring methods in literacy, community/school service, and contemporary issues in education. May be repeated to six credits, one credit per semester. Prereq: permission required. Cr/F.

EDUC 507 - Mentoring Adolescents**Credits: 2.00**

This seminar is intended for undergraduate men and women who are mentoring local middle-school students on a weekly basis. The mentoring involves minimally tutoring the mentees once a week at their schools. The seminar meets twice a month for two hours. Additionally, one tutoring session a month is reserved for a focus group discussion involving the mentors and their mentees at the school site. May be repeated for a maximum of 12 credits.

EDUC 694 - Courses in Supervised Teaching**Credits: 8.00**

Supervised Teaching of Music. Cr/F. Supervised Teaching of Adult and Occupational Education. Cr/F. Supervised Teaching of Mathematics. Cr/F.

EDUC 694D - Courses in Supervised Teaching**Credits: 4.00**

Supervised teaching of Kinesiology. Cr/F.

EDUC 700 - Educational Structure and Change**Credits: 2.00 or 4.00**

Organization, structure, and function of American schools; historical, political, social and cross-cultural perspectives; nature and processes of change in education. A) Educational Structure and Change; B) Education in America: Backgrounds, Structure, and Function; C) Governance of American Schools; D) School and Cultural Change; E) Teacher and Cultural Change; F) Social Perspectives of Conflict in the Schools; G) Nature and Processes of Change in Education; H) What is an Elementary School?; I) Schooling for the Early Adolescent; J) Curriculum Structure and Change; K) Stress and Educational Organizations. Candidates teacher licensure must take either 4-credit course 700A, or 2 credits each of 700F and and 700C. Prereq: for teacher licensure: EDUC 500 and junior status. Prereq: for students not

seeking teacher licensure: instructor permission. Writing intensive.

EDUC 701 - Human Development and Learning: Educational Psychology

Credits: 2.00 or 4.00

Child development through adolescence, learning theory, cognitive psychology, research in teaching and teacher effectiveness, cross-cultural variability, and evaluation-- all applied to problems of classroom and individual teaching and learning. A) Human Development and Learning: Educational Psychology; B) Human Development: Educational Psychology; C) Human Learning: Educational Psychology; D) Developmental Basis of Learning and Emotional Problems; E) Learning Theory, Modification of Behavior, and Classroom Management; F) Cognitive and Moral Development; G) Evaluating Classroom Learning; H) Deliberate Psychological Education; I) Sex Role Learning and School Achievement; J) The Development of Thinking. Each semester 2-credit and 4-credit courses are offered. 2-credit courses emphasize either development or learning. Candidates for teacher licensure are required to have the 4-credit course (701A) or 2 credits each of 701B and 701C. Prerequisite for teacher licensure: EDUC 500 and junior status. Prerequisite for students not seeking teacher licensure: instructor permission and junior status. 701A has a special fee when taught in Manchester. Writing intensive.

EDUC 703 - Alternative Teaching Models

Credits: 2.00 or 4.00

Basic teaching models, techniques of implementation, and relationships to curricula. A) Alternative Teaching Models; B) Curriculum Planning for Teachers; C) Alternative Strategies for Maintaining Classroom Control; D) Social Studies Methods for Middle and High School Teachers; F) Teaching Elementary School Science; G) Language Arts for Elementary Teachers; H) Experiential Curriculum; I) Children with Special Needs; Teaching Strategies for the Classroom Teacher; K) Writing across the Curriculum; L) Learning and LOGO; M) Teaching Elementary School Social Studies. 2-credit and 4-credit courses are offered. Teacher education students should be aware of the specific course(s) required for their licensure area. EDUC 703F and M are required for elementary education candidates. EDUC 703D is required for social studies candidates. EDUC 791 is required for science candidates. For all other secondary education candidates, the appropriate methods course in the department of major is required. See the Schoolhouse Book for specific course listings. Prerequisite for teacher licensure: EDUC 500 and junior status. Prerequisite for students not seeking teacher licensure: instructor permission and junior status. 703F has a special fee when taught in Manchester.

EDUC 705 - Alternative Perspectives on the Nature of Education

Credits: 2.00 or 4.00

Students formulate, develop, and evaluate their own educational principles, standards, and priorities. Alternative philosophies of education; contemporary issues. A) Contemporary Educational Perspectives; B) Controversial and Ethical Issues in Education; D) Concepts of Teaching: Differing Views; E) Curriculum Theory and Development; F) Readings on Educational Perspectives; G) Philosophy of Education; I) Education as a Form of Social Control; K) Schooling and the Rights of Children; L) Education, Inequality, and the Meritocracy; M) Readings and Philosophies of Outdoor Education; N) Alternative Perspectives on the Nature of Education; O) Classrooms: The Social Context; P) Teaching: The Social Context; Q) School and Society. 2-credit and 4-credit courses are offered. Candidates for teacher licensure must choose either 4-credit course 705A, 705B, or 705Q. Prerequisite for teacher licensure: EDUC 500 and junior status. Prerequisite for students not seeking teacher licensure: instructor permission and junior status. Writing intensive.

EDUC 706 - Introduction to Reading in the Elementary School

Credits: 4.00

Methods in reading and writing instruction; current procedures and materials; diagnostic techniques. Course satisfies reading/language arts requirement for prospective elementary teachers in the five-year

teacher education program. Prereq: EDUC 500 and junior status.

EDUC 707 - Teaching Reading through the Content Areas

Credits: 2.00

Approaches and methods for teaching reading through content materials; coursework includes practical applications through development of instructional strategies and materials. Required for candidates seeking certification in art, biology, chemistry, earth science, general science, physical science, physics, or social science.

EDUC 710A - Concepts of Adult and Occupational Education

Credits: 4.00

Development of occupational education in the U.S.; socio-economic influences responsible for its establishment; federal and state requirements for secondary and postsecondary schools. Coordination of programs with general education and vocational fields. Focus on selected concepts relevant to adult education. Special attention on the adult as a learner, volunteer management, evaluation and accountability, experiential learning, and adult education. Required of all degree candidates in AOE concentrations. Writing intensive.

EDUC 710C - Youth Organizations

Credits: 4.00

Organizational development (advising youth organizations, teaching parliamentary procedure, developing programs and activities, leadership). FFA/SAEP (Future Farmers of America/Supervised Agricultural Experience Programs, for high school youth). VICA (Vocational Industrial Clubs of America). 4-H (Cooperative Extension Youth Program).

EDUC 710E - Workshop in Adult and Occupational Education

Credits: 1.00 to 4.00

Modularized instruction of in-service education. Focus varies with the needs of the student. May be repeated for up to 8 credits.

EDUC 710F - Investigations

Credits: 1.00 to 4.00

Topics may include career education, secondary education, post-secondary education, adult education, extension education, exemplary education, cooperative education, disadvantaged and handicapped education, international agriculture, or teaching experience. Student-selected in one of the areas listed. Elective after consultation with instructor. Hours arranged. May be repeated.

EDUC 710H - Field Experience

Credits: 2.00 to 16.00

Work with an agency, institution, or organization to gain technical and/or professional competence not otherwise available. Student plans experience with departmental adviser. Credit approval subject to recommendation of faculty members and performance of student. Prereq: permission.

EDUC 717 - Growing up Male in America

Credits: 4.00

An integrative view of growing up male in the American culture from birth through adulthood. Analysis of major perspectives on male development and the implications in parenting with specific emphasis on male education. Participants are expected to develop awareness of their own development as a male or alongside males, using current male development perspectives as a guide. They also create an awareness of how this will affect their behavior toward boys in their classrooms.

EDUC 720 - Integrating Technology into Classroom

Credits: 4.00

Participants gain practical experience that takes specific advantage of technology to enhance and extend student learning. State academic standards and national technology standards are used to make decisions about curriculum content and to plan technology-based activities. Participants use electronic management tools such as iMovie, Powerpoint, podcast, webcast, Comic Life, Audacity, and Garage Band are featured in this hands-on course.

EDUC 733 - Introduction to the Teaching of Writing**Credits: 4.00**

Development of writers, child to adult; ways to respond to writing; organization of the classroom for the teaching of writing. Persons taking the course need to have access to students to carry out course requirements. Prereq: permission.

EDUC 734 - Children's Literature**Credits: 4.00**

Interpretive and critical study of literature for children in preschool and elementary settings. Methods of using literature with children.

EDUC 735 - Young Adult Literature**Credits: 4.00**

Critical study of the fiction and nonfiction genres that constitute literature written for the adolescent reader. Emphasis on literary analysis of young adult literature and its pedagogical uses in middle/junior high/high school curriculum.

EDUC 741 - Exploring Mathematics with Young Children**Credits: 4.00**

A laboratory course offering those who teach young children mathematics, and who are interested in children's discovery learning and creative thinking, an opportunity to experience exploratory activities with concrete materials. Offers mathematical investigations through which one may develop the ability to provide children with a mathematically rich environment to become adept at asking problem-posing questions.

EDUC 750 - Introduction to Exceptionality**Credits: 4.00**

A life span perspective of the social, psychological, and physical characteristics of individuals with exceptionalities including intellectual, sensory, motor, health, and communication impairments. Includes implications for educational and human service delivery.

EDUC 751A - Educating Exceptional Learners: Elementary**Credits: 4.00**

Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, will be the primary focus.

EDUC 751B - Educating Exceptional Learners: Secondary**Credits: 4.00**

Foundations of special education and an introduction to a variety of service delivery models with an emphasis on educating all learners in heterogeneous classrooms. Instructional strategies and supports for all students, particularly those with mild and moderate disabilities, is the primary focus. Preparation for students' transitions to post-secondary life is included.

EDUC 751C - Educating Exceptional Learners: Related Services

Credits: 4.00

An overview of special education and related services in an educational setting. Focus on support services provided to general education and special education teachers, including laws relating to special populations, how related services interact with classroom and special educators, IEPs, and other topics that impact services provided to students with special needs.

EDUC 752 - Contemporary Issues in Learning Disabilities**Credits: 4.00**

Critical analysis of current and historical conceptions of learning disability in the areas of definition, supporting theories, assessment practice, and teaching methodologies. Focus on contemporary issues in the field that relate to working with students labeled as learning disabled at both elementary and secondary levels.

EDUC 753 - Contemporary Issues in Behavioral Disabilities**Credits: 4.00**

Nature and scope of emotional and behavioral disabilities in students for elementary through secondary levels. Theoretical perspectives, characteristics, assessment and educational intervention strategies are included.

EDUC 754 - Contemporary Issues in Developmental Disabilities**Credits: 4.00**

The causal factors, physical and psychological characteristics, and educational and therapeutic implications of mental retardation, cerebral palsy, epilepsy, autism, and related conditions. A life span perspective is included, with major emphasis on the school-age population.

EDUC 755 - Facilitating Social Understanding and Relationships for Students with Disabilities**Credits: 2.00**

The course will focus on the classroom and individual supports needed by students with intellectual and other developmental disabilities, including autism spectrum disorders, in order to have a wide variety of satisfying social relationships. Participants identify the factors that (a) are essential to the development of shared social understanding between students with and without disabilities; (b) promote reciprocal social relationships; and (c) how to recognize and mitigate barriers to reciprocal relationships.

EDUC 756 - Supporting Families of Individuals with Exceptionalities**Credits: 4.00**

An introduction to family system theory and the implications for families having members with exceptionalities. Issues addressed include diagnosis and prognosis, coping strategies, communication and team collaboration, cross-cultural competence, and agency and school delivery of services. Emphasis is on proactive collaboration with family members.

EDUC 757 - Contemporary Issues in Autism Spectrum Disorders**Credits: 4.00**

The goal of this course is to enhance students' understanding of contemporary issues related to educating students with autism spectrum disorders (ASD). The course is grounded in a theoretical foundation that values the perspectives of individuals with ASD in academic, research, policy, and clinical endeavors. Learning outcomes focus on strategies for identifying opportunities for learning, communication, literacy, and social relationships in a variety of inclusive environments. May be repeated up to a maximum of 8 credits. Permission required. Prereq: UNH Summer Institute on Autism.

EDUC 760 - Introduction to Young Children with Special Needs**Credits: 4.00**

Needs of children (birth to eight years) with developmental delays or who are at risk for disabilities.

Strengths and special needs of such children; causes, identification, and treatment; current legislation; parent and family concerns; program models.

EDUC 767 - Students, Teachers, and the Law

Credits: 4.00

Our public schools play a vital role in our society. What shall be taught and who shall teach our children are perennial questions. This course explores how the law impacts the educational lives of students and teachers, including issues of church-state relations, free speech, dress codes, and search and seizure. (Also offered as JUST 767.)

EDUC 776 - Reading for Learners with Special Needs

Credits: 4.00

Techniques and procedures for teaching reading to learners with special needs. Emphasis on providing reading instruction in the least restrictive alternative.

EDUC 780 - Belize/New Hampshire Teacher Program

Credits: 4.00

International course involving teams of teachers from Belize and New England. The program offers teachers in both countries the opportunity to work collaboratively on developing effective teaching practices, develop an understanding of each other's cultural and educational perspectives, extend the experience to other teachers and students upon return. Special fee.

EDUC 781 - Introduction to Statistics: Inquiry, Analysis, and Decision Making

Credits: 4.00

An applied statistics course that covers introductory-level approaches to examining quantitative information. Students spend about half of class time in the computer lab analyzing real data from the behavioral and social sciences. An emphasis is placed on the role of statistics in making empirically-based policy decisions.

EDUC 785 - Educational Assessment

Credits: 4.00

Theory and practice of educational evaluation; uses of test results in classroom teaching and student counseling; introductory statistical techniques.

EDUC 791 - Methods of Teaching Secondary Science

Credits: 4.00

Application of theory and research findings in science education to classroom teaching with emphasis on inquiry learning, developmental levels of children, societal issues, integration of technology, critical evaluation of texts and materials for science teaching, and planning for instruction. Lab.

EDUC 795 - Independent Study

Credits: 2.00 or 4.00

Juniors and seniors only, with approval by appropriate faculty member. Neither course may be repeated.

EDUC 796 - Independent Study

Credits: 2.00 or 4.00

See description for EDUC 795.

EDUC 797 - Seminar in Contemporary Educational Problems

Credits: 1.00 to 4.00

Issues and problems of special contemporary significance, usually on a subject of recent special study by faculty member(s). Prereq: permission. May be repeated for different topics. Special fee on topic: Picturing

Writing, Fostering Literacy through Art.

Electrical&Comp Engineering

ECE 401 - Perspectives in Electrical and Computer Engineering

Credits: 4.00

An introductory course for electrical and computer engineering majors that introduces incoming students to the fundamental concepts of analysis and design. Concepts are presented through an examination of real-world problems. Students are introduced to electrical and computer engineering problem solving and design through active learning techniques in lecture and in a laboratory setting. Provides a context for the electrical engineering and computer engineering curriculum and introduces the profession and activities of electrical and computer engineering. Two lectures and one computer laboratory per week are required. No prerequisites. Lab.

ECE 444 - Bionics: Technology from Nature

Credits: 4.00

Bionics is the study of living systems with the intention of applying their principles to the design of useful technology for mankind. Students learn strategies to discover bio-inspired technology. The student investigates the fields of bio-inspired cyborgs, defense and attack mechanisms in biology leading to military applications including non-lethal weapons, bio-inspired sensors including brain-computer interfaces, bio-inspired robots, and animal and plants that generate energy for technology. Writing Intensive. Laboratory.

ECE 537 - Introduction to Electrical Engineering

Credits: 4.00

Fundamentals of electrical engineering. Topics are circuit elements; signal waveforms; circuit laws and theorems; transfer functions; free, forced, and steady state responses; power calculations; amplifiers; and magnetic circuits. Non-ECE majors only. Lab. Prereq: PHYS 408. Pre- or Coreq: MATH 527.

Co-requisites:

ECE 541 - Electric Circuits

Credits: 4.00

Linear passive circuits beginning with resistive circuits, power and energy relations, mesh and node analysis. Transient and steady-state behavior of simple circuits containing energy storage elements (capacitors, inductors). Introduction to linear active circuits using dependent source models and ideal op amps. Introduction to transfer function and frequency response concepts. For ECE majors only. Prereq: MATH 426; Pre or Coreq: PHYS 408. Lab.

ECE 543 - Introduction to Digital Systems

Credits: 4.00

Fundamental analysis and design principles. Number systems, codes, Boolean algebra, and combinational and sequential digital circuits. Lab: student-built systems using modern integrated circuit technology and an introductory design session on a CAD workstation. Lab and discussion.

ECE 544 - Engineering Analysis

Credits: 4.00

Analyze and solve engineering problems using linear algebra and integral and differential calculus of functions of several variables. Boundary-value problems in mechanics, fluid dynamics, and electrostatics. Examination of electrostatics, magnetostatics, and fluid and wave mechanics using vector differential and integral calculus. Introduction of approximation and error analysis methods as fundamental engineering tools. Prereq: MATH 527.

ECE 548 - Electronic Design I

Credits: 4.00

Introduction to electronic design for analog signal processing. Linear op amp circuits for amplification and filtering. Use of Laplace techniques for filter specification; simple passive and op amp filter realizations. Discrete active devices (FET and BJT): operating characteristics, biasing considerations, canonical amplifier configurations including differential amplifiers. Prereq: ECE 541. Lab.

ECE 562 - Computer Organization

Credits: 4.00

Basic computer structure, including arithmetic, memory, control, and input/output units; the trade-offs between hardware, instruction sets, speed, and cost. Laboratory experiments involving machine language programming and I/O interfacing using microcomputers. Prereq: CS 410 or CS 415; ECE 543; or permission. Lab.

ECE 583 - Designing with Programmable Logic

Credits: 4.00

Design methodologies for implementing digital systems in programmable logic. Covers topics related to the design, implementation, and testing of programmable logic devices. Students are introduced to the Very-High-Speed Hardware Description Language (VHDL) entry language and simulation procedures, along with common logic synthesis tools. Programmable logic families, device architectures, and testing procedures are covered in detail. Laboratory exercises lead the student through the complete programmable logic design cycle. Each student is required to prototype a digital system starting with VHDL entry, functional and timing simulations, logic synthesis, device programming, logic probing, and systems verification. Prereq: ECE 543, ECE 562 or permission. Lab.

ECE 603 - Electromagnetic Fields and Waves I

Credits: 4.00

Maxwell's equations in integral and differential form with applications to static and dynamic fields. Uniform plane waves in free space and material media. Boundary conditions; simple transmission line theory; parallel plate and rectangular waveguides; simple radiating systems. Prereq: PHYS 408; ECE 544 or equivalent.

ECE 603H - Electromagnetic Fields and Waves I/Honors

Credits: 4.00

Same topics as ECE 603. Honors students will attend an additional one-hour meeting each week. Prereq: PHYS 408; ECE 544 or equivalent.

ECE 617 - Junior Laboratory I

Credits: 4.00

Application of laboratory instrumentation to the investigation of active and passive circuit characteristics; introduction to computer-aided design, analysis, and testing; development of report writing and oral presentation skills. Coreq: ECE 633 or 633H, 651. Writing intensive.

Co-requisites: ECE 633, ECE 651

ECE 618 - Junior Laboratory II

Credits: 4.00

Laboratory exercises in the design and analysis of active circuits, techniques of signal processing, and the properties of distributed circuits. Continued development of report writing and oral presentation skills. Prereq: ECE 603, 617. Writing intensive.

Co-requisites:

ECE 633 - Signals and Systems I

Credits: 3.00

Mathematical characterization of continuous-time systems using time- and frequency-domain concepts. Properties of linear systems described by ordinary differential equations. Fourier analysis of signals and system frequency response functions. Applications to communication and control systems. Introduction to system simulation using computer methods. Prereq: MATH 527 or equivalent.

Co-requisites:

ECE 633H - Signals and Systems I/Honors

Credits: 4.00

Same topics as ECE 633. Honors students will attend an additional one-hour meeting each week. Prereq: MATH 527 or equivalent.

Co-requisites:

ECE 634 - Signals and Systems II

Credits: 3.00

Transient response analysis of linear systems using Laplace transforms, application to feedback control systems. Introduction to discrete-time linear systems; system response determination using Z-transform; elementary design of digital filters and controllers. State variable formulation of dynamical systems. Prereq: ECE 633 or permission.

ECE 647 - Random Processes and Signals in Engineering

Credits: 3.00

Emphasis on applied engineering concepts such as component failure, quality control, noise propagation. Topics include random variables, probability distributions, mean and variance, conditional probability, correlation, power spectral density. Prereq: MATH 426, ECE 544.

ECE 649 - Embedded Microcomputer Based Design

Credits: 4.00

An in-depth treatment of the design of embedded microcomputer systems. Topics include advanced architectures for embedded processors, hardware and software aspects of interfacing, handling interrupts, advanced programming including debugging of real time systems, embedded application implementations. Laboratory studies are required to reinforce theoretical and applied concepts in an actual embedded architecture. Prereq: ECE 562 or permission. Lab.

ECE 651 - Electronic Design II

Credits: 4.00

Design of fundamental circuit blocks in electronic systems. Multistage amplifiers; feedback systems and stability; power amplifiers. Nonlinear electronic circuits: oscillators, function generators; clippers and peak detectors; A/D and D/A conversion. Switching mode and logic circuits. Prereq: ECE 548.

ECE 668 - Fundamentals of Computer Engineering

Credits: 4.00

Software engineering principles and practices; computer-aided design and computer-aided engineering methodologies; sampled data systems; computer architecture comparisons and tradeoffs. Prereq: ECE 562, PHYS 408 or permission. Electrical Engineering majors only. Lab.

ECE 668H - Fundamentals of Computer Engineering/Honors

Credits: 4.00

See description for ECE 668. Honors students engage in additional advanced project work. Prereq: ECE 562, PHYS 408 or permission. Electrical Engineering majors only. Lab.

ECE 681 - Teaching Experience

Credits: 1.00

Credit for assisting in the instruction of undergraduate laboratories. Available on a limited basis to students selected by the department chairperson. May be repeated for credit up to a total of 4 credits.

ECE 694 - Professional Principles of Engineering**Credits: 1.00**

Lectures, seminars, and discussions related to engineering design and professionalism. Provides background for capstone design experience. Topics include: creativity, design methodology, specification development, total quality management, ethics, safety, reliability, aesthetics, and preparation for oral and written reports. Cr/F.

ECE 704 - Electromagnetic Fields and Waves II**Credits: 4.00**

Loop antennas; aperture and cylindrical antennas; self and mutual impedance; receiving antennas and antenna arrays; bounded plane waves; rectangular and cylindrical waveguides; waveguide discontinuities and impedance matching; solid state microwave sources. Prereq: ECE 603 or equivalent.

ECE 711 - Digital Systems**Credits: 4.00**

Principles and procedures related to the design and implementation of microprocessor-based embedded systems. Topics include microprocessor technologies; management of the development cycle; implementation methodologies such as printed circuit boards and system integration; design considerations related to manufacturing and testing of digital systems; and analysis implementation limitations related to electromagnetic noise, grounding/power schemes, timing, device packaging, and heat/power requirements. Students prototype a digital system using CAD tools, printed circuit board technology, and modern diagnostic/testing procedures and tools. Devices such as microprocessors, microcontrollers, network controllers, data/acquisition/processing units, application specific integrated circuits, and interface logic will be selected for the design projects. Projects reflect the advances in modern digital technologies. Prereq: ECE 668; or permission. Lab.

ECE 714 - Introduction to Digital Signal Processing**Credits: 4.00**

Introduction to digital signal processing theory and practice, including coverage of discrete time signals and systems, frequency domain transforms and practical spectral analysis, digital filter terminology and design, and sampling and reconstruction of continuous time signals. Laboratory component providing an introduction to DSP design tools and real-time algorithm implementation. Prereq: ECE 633; or permission. Lab.

ECE 714H - Introduction to Digital Signal Processing/Honors**Credits: 4.00**

Same topics as ECE 714. Honors students will engage in additional advanced project work. Prereq: ECE 633 or permission.

ECE 715 - Introduction to VLSI**Credits: 4.00**

Principles of VLSI (Very Large Scale Integration) systems at the physical level. CMOS circuit and logic design, CAD tools, CMOS system case studies. Students exercise the whole development cycle of a VLSI chip: design and layout performed during semester I. The chips are fabricated off campus and returned during semester II, when they are tested by students. An IA (continuous grading) grade is given at the end of semester I. Prereq: ECE 668 or permission.

ECE 717 - Introduction to Digital Image Processing

Credits: 4.00

Digital image representation; elements of digital processing systems; multidimensional sampling and quantization; image perception by humans, image transformations including the Fourier, the Walsh, and the Hough Transforms; image enhancement techniques including image smoothing, sharpening, histogram equalization, and pseudo color processing; image restoration fundamentals; image compression techniques, image segmentation and use of descriptors for image representation and classification. Prereq: ECE 633; ECE 647 or permission. Lab.

ECE 734 - Network Data Communications**Credits: 4.00**

Introduces basic concepts related to data transmission equipment and physical interfaces, data communication protocols, and the Open System Interconnection (OSI) Reference Model. Includes physical layer hardware, signaling schemes, protocol packets, computer interfaces, error detection, signal integrity, and data transmission protocols relative to both wired and wireless networks. Introduces both logical and wide-area networks, and how a networking system is constructed, tested, and managed. Network design and testing exercises. Prereq: ECE 633; 667 or 668;/ or permission.

ECE 734H - Network Data Communications/Honors**Credits: 4.00**

Same topics as ECE 734. Honors students will engage in additional advanced project work. Prereq: ECE 633 or permission.

ECE 745 - Environmental Acoustics I: Air and Water**Credits: 4.00**

Sound and vibration; simple harmonic oscillators; characteristics and measurements of sound sources and receivers; acoustic wave equation (1D, 2D, 3D); sound reflection, transmission, refraction, and absorption in various media; room acoustics; basic sonar equation. Prereq: PHYS 408; MATH 527; ECE 544 or permission. Lab. (Also listed as OE 745.)

ECE 757 - Fundamentals of Communication Systems**Credits: 4.00**

Spectra of deterministic and random signals; baseband and bandpass digital and analog signaling techniques; transmitter and receiver architectures; performance analysis of digital and analog signaling in additive noise channels; carrier and symbol timing synchronization methods. Prereq: ECE 633; ECE 647 or permission. Lab.

ECE #758 - Communication System Design**Credits: 4.00**

System- and circuit-level design and implementation of communication hardware including: mixers, RF amplifiers, filters, oscillators and frequency synthesizers, modulators and detectors, carrier and symbol timing recovery subsystems. Issues in software-defined radio transmitter and receiver implementation. Communication link engineering including antenna selection and channel impairment effects. Prereq: ECE 651; ECE 757; or permission. Lab.

ECE 760 - Introduction to Fiber Optics**Credits: 4.00**

Basic physical and geometric optics; solution of Maxwell's equations for slab waveguides and cylindrical waveguides, of both step index and graded index profiles; modes of propagation and cutoff; polarization effects; ground and phase velocity; ray analysis; losses; fabrication; sources; detectors; couplers; splicing; cabling; applications; system design. Prereq: ECE 603 or permission. Lab.

ECE 772 - Control Systems

Credits: 4.00

Development of advanced control system design concepts such as Nyquist analysis; lead-lag compensation; state feedback; parameter sensitivity; controllability; observability; introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ECE 634 or permission. (Also offered as ME 772.) Lab.

ECE 774 - Introduction to Neural Networks**Credits: 4.00**

Introduces theory and application of artificial neural networks. Single-layer and multi-layer feed-forward and recurrent network architectures. Supervised, unsupervised, and reinforcement learning principles. Applications to control and signal processing. ECE majors or permission.

ECE 775 - Applications of Integrated Circuits**Credits: 4.00**

Design and construction of linear and nonlinear electronic circuits using existing integrated circuits. Limitations and use of operational amplifiers. Laboratory course in practical applications of non-digital integrated circuit devices. Prereq: ECE 651 or permission. Lab.

ECE 777 - Collaborative Engineering**Credits: 4.00**

Study of processes in which engineers from diverse disciplines cooperate to specify, design, manufacture, test, market, and maintain a product. Classes are organized in both technical and nontechnical flexible modules. Technical topics are advanced and relevant to project being developed, such as related research, technology, design methodology, and CAD tools. Nontechnical topics include ISO 9000 quality system, engineering management, budget considerations, building, communication and leadership skills, and concurrent engineering principles. The course utilizes collaborative engineering by team development of an engineering project, often a research oriented proof-of-concept prototype. Prereq: permission. Lab.

ECE 781 - Physical Instrumentation**Credits: 4.00**

Analysis and design of instrumentation systems. Sensors, circuits, and devices for measurement and control. Elements of probability and statistics as applied to instrument design and data analysis. Transmission, display, storage, and processing of information. The design, implementation, testing, and evaluation of a relevant instrument system is an integral part of the course. Prereq: ECE 651 or permission. Lab.

ECE 784 - Biomedical Instrumentation**Credits: 4.00**

Principles of physiological and biological instrumentation design including transducers, signal conditioning, recording equipment, and patient safety. Laboratory includes the design and use of instrumentation for monitoring of electrocardiogram, electromyogram, electroencephalogram, pulse, and temperature. Current research topics, such as biotelemetry, ultrasonic diagnosis, and computer applications. Prereq: ECE 651 or permission. Lab.

ECE 785 - Environmental Acoustics II: Air and Water**Credits: 4.00**

General sonar equation: active, passive; sound generation, source level, directivity, calibration methods; sound propagation, rays and normal modes, acoustic waveguides; transmission loss, reverberation, scattering; ambient noise characteristics and measurements; sound reception and processing. Prereq: ECE 745/845 or OE 745/845. Lab.

ECE 791 - Senior Project I

Credits: 2.00

Provides background for the capstone design experience. Topics include creativity, design methodology, specification development, total quality management, ethics, safety, reliability, aesthetics, and preparation for oral and written reports. Capstone project selection procedure. Honors students attend an additional meeting each week and engage in independent and advanced project work. Students who pass this course receive an IA, which will be converted to a grade upon successful completion of ECE 792/792H. Writing intensive.

ECE 791H - Senior Honors Project I**Credits: 2.00**

See description for ECE 791. Honors students attend an additional meeting each week and engage in independent and advanced project work. Students who pass this course receive an IA, which will be converted to a grade upon successful completion of ECE 792/792H. Writing intensive.

ECE 792 - Senior Project II**Credits: 2.00**

Continuation of ECE 791. This course requires the completion of the capstone design experience. Writing intensive.

ECE 792H - Senior Honors Project II**Credits: 2.00**

See description for ECE 792. Honors students attend an additional meeting each week and engage in independent and advanced project work. Writing intensive.

ECE 795 - Electrical and Computer Engineering Projects**Credits: 1.00 to 4.00**

Laboratory course. Student undertakes a project of mutual interest with an ECE faculty advisor. A written final report must be filed with the ECE Department. Prereq: permission.

ECE 796 - Special Topics**Credits: 1.00 to 4.00**

New or specialized courses and/or independent study. Prereq: permission. 1 to 4 credits some sections may use credit/fail grading.

Engineering Technology

ET 601 - Data Structures and Data Bases

Credits: 4.00

A brief review of fundamental container classes; stacks, queues and link lists followed by more advanced data structures and concepts using search algorithms, iterators, and efficiency indicators. The second part of the course will include the development and use of relational databases using a commercial database engine. Java console applications and minimal Graphic User Interface applications will be used throughout the course to develop and test concepts.

ET 625 - Technical Communications

Credits: 4.00

Designed to improve students' capabilities to prepare and present technical information in written and oral form and through electronic means. ET majors should take this course early in their program of study so that proficiencies developed can be utilized in later courses. (Also listed as ENGL 502.) Writing intensive.

ET 630 - Analytical Methods in Engineering Technology

Credits: 4.00

Review of college-level mathematics including differential and integral calculus with applications and advanced topics, e.g., Fourier analysis, Laplace transform technique, and probability and statistics. Prereq: engineering technology majors only.

ET 639 - Heating, Ventilation and Air Conditioning I

Credits: 4.00

First in a two course sequence designed to familiarize the student with the design and operation of fluid thermal systems with specific applications in the heating, ventilating, and air conditioning of occupied spaces and some reference to industrial process control. Prereq: thermodynamics, calculus, or permission. Lab. Special fee.

ET 640 - Heating, Ventilation and Air Conditioning II

Credits: 4.00

Second in a two course series designed to acquaint the student with the fundamentals of fluid thermal system design with specific topics in solar loads on buildings, air conditioning system requirements, pump and fan selection, piping and duct system design, and an introduction to controls. Prereq: ET 639 or permission. Lab. Special fee.

ET 641 - Production Systems

Credits: 4.00

Market forecasting; waiting line theory; manufacturing inventories and their control; production scheduling; quality control. Prereq: differential and integral calculus.

ET 644 - Mechanical Engineering Technology Concepts in Analysis and Design

Credits: 4.00

Kinematics, kinetics, work and energy, fluids, heat transfer; application of these concepts to problems in mechanical design. Prereq: strength of materials and dynamics and ET 637.

ET 647 - Advanced Perspectives on Programming

Credits: 4.00

Several programming languages will be selected for study and analysis. Students will gain knowledge

regarding the languages studied and conduct analysis related to comparisons and divergence in capabilities. Prereq: intermediate programming skills in three or more programming languages. Major suggested languages of interest are: Java, C++, Visual Basic, Visual C++ Windows, Visual Basic.Net and C# or permission.

ET 671 - Digital Systems

Credits: 4.00

Digital systems design and application using TTL and CMOS devices, design of systems, and interfacing. Digital design project required. Prereq: introductory digital design. Special fee. Lab.

ET 674 - Control Systems and Components

Credits: 4.00

Topics include linear systems analysis, the Laplace transform and its properties, controllers, root locus technique, transient response analysis, first- and second-order systems, error analysis, and control system design. Prereq: differential and integral calculus. Lab.

ET 675 - Electrical Technology

Credits: 4.00

Electrical circuits: DC and AC network analysis, power factors, transformers, power supplies. Electronic circuits--diodes, transistors and operational amplifiers. Digital circuits and introduction to computer-aided engineering. Prereq: differential and integral calculus. Lab

ET 677 - Analog Systems

Credits: 4.00

Operational amplifiers. Transducers and measurement systems. Frequency response. Grounding and shielding. Signal and power interfacing techniques. Design project. Prereq: intro. analog design. Special fee. Lab.

ET 680 - Communications and Fields

Credits: 4.00

Topics include Fourier series analysis; the Fourier transform and its properties; convolution; correlation including PN sequences; modulation theory; encoding and decoding of digital data (NRZ-M, NRZ-S, RZ, Biphase-L, and Manchester); antennas and antenna pattern; Radar Range Equation; and an introduction to information theory. Prereq: differential and integral calculus. Lab.

ET 695 - Independent Study

Credits: 1.00 to 4.00

Individual reading, writing, or laboratory work carried out under the tutelage of a faculty member. Prereq: approval of the adviser. May be repeated up to a maximum of 4 credits.

ET 696 - Topics in Mechanical Engineering

Credits: 1.00 to 4.00

New or specialized courses not covered in regular course offerings. Prereq: permission. May be repeated to a maximum of 4 credits.

ET 697 - Topics in Electrical Engineering Technology

Credits: 1.00 to 4.00

New or specialized courses not covered in regular course offerings. Prereq: permission. May be repeated for a maximum of 4 credits.

ET 706 - Internship

Credits: 1.00 to 4.00

On-the-job skill development through fieldwork in industry. Normally, supervision is provided by a qualified individual in the organization with consultation by a faculty sponsor. Written report required. Internships may be part or full time, with course credits assigned accordingly. May be repeated to a maximum of 4 credits. Credit/Fail.

ET 707 - Object Oriented Design and Documentation

Credits: 4.00

Current design techniques and strategies, including State Transition Diagrams (STD) and Unified Modeling Language (UML), provide the core of the course. Case studies of large programming projects will be developed. Group programming projects will be completed based upon case studies. Prereq: intermediate programming skills in one or more of the following OOP language: Java, C_, Visual C++ Windows, Visual Basic.Net and C# or by permission.

ET 717 - Network Security

Credits: 4.00

The technical, operational, and managerial issues of computer systems and network security in an operational environment. Addresses the threats to computer security including schemes for breaking security, and techniques for detecting and preventing security violations. Emphasis on instituting safeguards, examining different types of security systems, and applying the appropriate level of security for the perceived risk. Prereq: Java programming.

ET 733 - Business Organization and Law

Credits: 4.00

Corporations; proprietorships; product liability; contracts; federal agencies; commercial paper; conditions of employment; business ethics; bankruptcy; U.C.C. Special fee. Writing intensive.

ET 734 - Economics of Business Activities

Credits: 4.00

Elementary financial accounting; compound interest and time value of money; sources of capital; cost estimating; depreciation; risk and insurance; personal finance. Prereq: differential and integral calculus. Special fee.

ET 747 - User Interface Design

Credits: 4.00

Standards in user interface design of programs applied to practical programming applications. Consistency in look and feel often forms the core of software certification requirements. Prereq: intermediate Graphic User Interface programming skills in one or more of the following languages: Java, Visual Basic, Visual C++ Windows, Visual Basic.Net and C# or permission.

ET 751 - Mechanical Engineering Technology Project

Credits: 4.00 or 8.00

Students are required to find solutions to actual technological problems in design, fabrication, and testing as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. A year-long course: 4 credits per semester; an IA grade (continuous course) given at the end of first semester. Withdrawal from course results in loss of credit.

ET 762 - Illumination Engineering

Credits: 4.00

Radiation; spectra, wave, and particle nature of light; physics of light production, light sources and circuits, luminaries; science of seeing, color theory, control of light, measurements, light and health, lighting calculations. Prereq: MATH 426, PHYS 408 or equivalent. Lab.

ET 777 - Advanced Distributed Programming Trends

Credits: 4.00

Distributed applications use a network or the Internet in a multi-tier architecture to distribute their presentation services, business logic, and data services. These applications often access many different data sources. The components contained in these applications typically participate in transactions and they can be shared by multiple users and multiple applications. Prereq: ET 647 or by permission.

ET #783 - Advanced Electronic Design Methods

Credits: 4.00

Design methods for analysis and synthesis of state-of-the-art circuits and systems, with real-world examples. A design project will be required. Laboratory work will form an important part of the course. Prereq: intro. analog and digital design. Special fee. Lab.

ET 787 - Artificial Intelligence and Expert Systems

Credits: 4.00

How to identify what an expert system is, and what an artificially intelligent system would be, if AI (artificial intelligence) actually existed beyond theory. Course explores some of the pitfalls that have plagued the AI community, such as why parallel processing has not provided the solution to bring theory to reality. Includes history behind AI, including connections to the human brain. Students create a mini expert system. Prereq: senior standing or by permission.

ET 788 - Introduction to Digital Signal Processing

Credits: 4.00

This course will deal with the topics of spectral representation of periodic and non-periodic analog signals followed by discrete sampling and aliasing and how it relates to Nyquist sampling theorem. The z-transform will be introduced as the required mathematical tool along with an introduction to MATLAB and its associated DSP tool box. Spectral analysis of digital signal will be accomplished using these tools. Convolution and digital filtering will also be covered. Lab. Prereq: ET 680 Communications and Fields or equivalent.

ET 790 - Microcomputer Technology

Credits: 4.00

Microcomputer systems design, including assembly language, interfacing, processor timing and loading, and inter-processor communications via local area networks. Hardware, software, and architecture of both Intel 80X86 and Motorola 68XX0 microprocessors. Microcomputer applications with emphasis on lab work using Motorola HCL microcontroller. Prereq: ET 671. Special fee. Lab.

ET 791 - Electrical Engineering Technology Project

Credits: 4.00 or 8.00

Students are required to find solutions to actual technological problems in design, fabrication, and testing, as posed by industry. Students define the problem, prepare a budget, and work with the client company to research, design, build, and test the software and/or hardware needed. Prereq: senior standing in E.T. Special fee. A year-long course: an IA grade (continuous course) given at end of first semester. Withdrawal from course results in loss of credit.

English

ENGL 400 - English as a Second Language

Credits: 1.00 to 16.00

Improves the competence of foreign students in listening comprehension, speaking, reading, and writing. Recommended as preparation for ENGL 401. May be repeated up to a total of 16 credits. Writing intensive. Cr/F.

ENGL 401 - First-Year Writing

Credits: 4.00

Training to write more skillfully and to read with more appreciation and discernment. Frequent individual conferences for every student. Special fee. Writing intensive.

ENGL 401A - First-Year Writing for English as a Second Language Students

Credits: 4.00

A special section of first-year writing for students whose native language is not English. Training to write more skillfully and to read with more appreciation and discernment, with special attention to the problems of non-native speakers of English. Supplemental work on listening and speaking as necessary. Frequent individual conferences for every student. Students may not take both ENGL 401 and ENGL 401A for credit. Special fee. Writing intensive.

ENGL 401H - Honors/First-Year Writing

Credits: 4.00

See description for ENGL 401. Writing intensive.

ENGL 403 - Introduction to the Study of Literature

Credits: 4.00

The art of thoughtfully enjoying major literary works.

ENGL 403W - Exploring Literature

Credits: 4.00

See description for ENGL 403. Writing intensive.

ENGL 405 - Introduction to Linguistics

Credits: 4.00

Overview of the study of language: universal properties of human language, Chomsky's innateness of hypothesis, language acquisition in children, dialects and language variation, language change. Includes introduction to modern grammar (phonology, syntax, semantics) and to scientific linguistic methodology. (Also offered as LING 405.)

ENGL 405H - Honors/Introduction to Linguistics

Credits: 4.00

See description for ENGL 405.

ENGL 419 - Introduction to Literary Analysis

Credits: 4.00

Critical analysis of fiction, poetry, and drama. Frequent short papers. This course is a prerequisite with a minimum grade of C for those intending to declare one of the four majors offered in the English Department. Writing intensive.

ENGL 419H - Honors/Introduction to Literary Analysis

Credits: 4.00

See description for ENGL 419. Writing intensive.

ENGL #444B - Secret Lives of Words

Credits: 4.00

Using problem and inquiry-based pedagogy, this class delves into the ways in which new words are coined, how they become established or die, and how they change over their natural lives. Touching upon topics in philosophy (the nature of meaning), theoretical linguistics (morphology, sociolinguistics), and lexicography, introduces students to both the methods of text-based analysis and field-based research. Topics include word formation; the history of vocabulary in English; the making of dictionaries; slang, jargon, and taboo language. Writing intensive. (Also listed as LING 444B.)

ENGL 444D - Irish Identity

Credits: 4.00

Explores the historical causes and literary effects of emigration from Ireland to other regions in the North and South Atlantic. Considers the political and economic conditions of Ireland itself and asks how Irish identities are first formed dialectically through contact with indigenous others and then nostalgically constituted through the experience of migration. Writing intensive.

ENGL 444E - Lions and Tigers and Books

Credits: 4.00

Course asks students to consider their personal experience of the relationship between humans and animals in the light of theoretical investigations from the fields of biology, psychology, philosophy, literature, and the arts. Students read fundamental cultural texts (Darwin, Freud, the Bible) and great literary works (Moby Dick, "The Metamorphosis"), in combination influential contemporary works (Peter Singer, Animal Liberation) and popular nonfiction works that offer a multidisciplinary view of human history and identity. Appropriate for students with ambitions in scientific fields who maintain a strong interest in the liberal arts. Writing intensive.

ENGL 444F - Language Matters in America

Credits: 4.00

Students engage in active research to understand how we use language to construct and interpret identity. Linguistic patterns typical of groups of various types (regional, ethnic, gender, age, communities of shared practice, etc.) are explored as are issues related to education, language use in politics and marketing, ESL, ASL, and African-American English. Course engages students in inquiry-based learning: determining what questions are important in the field, figuring out how to find answers, pursuing these answers, and interpreting what you find out, following established practices in the social sciences. Writing intensive. (Also listed as LING 444F.)

ENGL 444G - Ethnic America: Readings in African American, Asian American, Native American, and Latino/a Litera

Credits: 4.00

This course introduces students to literature by and about African Americans, Asian Americans, Natives, and Latino/as. It introduces approaches in American Studies that will guide students in understanding and appreciating what we call ethnic literature. Secondary sources might include readings in and about ideological criticism, historical analysis, race and ethnic studies, multicultural education, formal narrative, and genre analysis. Writing intensive.

ENGL 444J - America on Film

Credits: 4.00

Explores cinematic images of American culture, in particular that of Hollywood cinema, looking closely at

representations of race, class, gender, sexuality, and nation. Also examines the medium of cinema itself, particularly aspects of film form, apparatus/technology, economy, and spectatorship. Students are required to attend weekly film screening labs in addition to classes. This course is Blackboard intensive. Special fee. Writing intensive.

ENGL 444K - People Stories: Investigating Identity as Literary Construction

Credits: 4.00

Plato's Republic, Shakespeare's As You Like It, Thoreau's Walden, Narrative of Frederick Douglass, Austen's Mansfield Park, Palahniuk's Fight Club, Eugenides' Middlesex, Satrapi's Persepolis, Hall's Without a Map, poetry, and seminar texts in criticism are read as we complicate our notions of what shapes identity across time, race, cultures, genders, economic statuses, and through the media of dialogue, novel, drama, poetry, graphic novel, and memoir. Writing intensive.

ENGL 501 - Introduction to Creative Nonfiction

Credits: 4.00

A writing course that explores types of creative nonfiction such as nature writing, the profile, the memoir, and the personal essay. Extensive reading of contemporary authors to study the sources and techniques used in creative nonfiction. Regular papers, conferences, and workshops. Special fee. Writing intensive.

ENGL 501H - Honors/Introduction to Creative Nonfiction

Credits: 4.00

See description for ENGL 501. Writing intensive.

ENGL 502 - Technical Writing

Credits: 4.00

A writing course focusing on effective communication of technical information. Writing of various technical documents, such as business letters, proposals, reports, brochures and web pages. Special emphasis on document design usability, visual rhetoric, and the use of technology in writing. Special fee. Writing intensive.

ENGL 502H - Honors/Technical Writing

Credits: 4.00

See description for ENGL 502. Prereq: permission. Special fee. Writing intensive.

ENGL 503 - Persuasive Writing

Credits: 4.00

Writing of all types of persuasive nonfiction prose, including argumentative essays and position papers. Special attention to argumentative structures and analysis of audiences. Weekly papers of varying lengths and formats, frequent conferences. Special fee. Writing intensive.

ENGL 511 - Major Writers in English

Credits: 4.00

In-depth study and discussion of a few American and/or British writers. Topics and approaches vary depending on instructors. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 513 - Survey of British Literature

Credits: 4.00

Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. Beowulf through 18th century. Writing intensive.

ENGL 513H - Honors/Survey of British Literature

Credits: 4.00

See description for ENGL 513. Writing intensive.

ENGL 514 - Survey of British Literature

Credits: 4.00

Selected works in poetry and prose considered in chronological order and historical context. Attention to the works and to the ideas and tastes of their periods. 1800 to the present. Writing intensive.

ENGL 514H - Honors/Survey of British Literature

Credits: 4.00

See description for ENGL 514. Writing intensive.

ENGL 515 - Survey of American Literature

Credits: 4.00

From the beginning of American literature to the Civil War. Writing intensive.

ENGL 515H - Honors/Survey of American Literature

Credits: 4.00

See description for ENGL 515. Writing intensive.

ENGL 516 - Survey of American Literature

Credits: 4.00

From the Civil War to the present. Writing intensive.

ENGL 516H - Honors/Survey of American Literature

Credits: 4.00

See description for ENGL 516. Writing intensive.

ENGL 517 - Introduction to African American Literature and Culture

Credits: 4.00

An introduction to African American literature in the context of a variety of cultural perspectives. Course topics may include major writers, literary genres, historical periods, Harlem Renaissance, Black Arts Movement, fine and folk arts, religion, music, and film. (Also offered as AMST 502.) Writing intensive.

ENGL 517H - Honors/Introduction to African American Literature and Culture

Credits: 4.00

See description for ENGL 517. Writing intensive.

ENGL 518 - Bible as Literature

Credits: 4.00

Literature of the Old and New Testaments and the Apocrypha, primarily in the King James version.

ENGL 518H - Honors/Bible as Literature

Credits: 4.00

See description for ENGL 518. Writing intensive.

ENGL 518W - Bible as Literature

Credits: 4.00

See description for ENGL 518. Writing intensive.

ENGL 521 - Nature Writers

Credits: 4.00

Fiction, poetry, and nonfiction books on the natural environment. Such books as Thoreau's Walden or Maine Woods, Leopold's Sand County Almanac, Boston's Outermost House, Dillard's Pilgrim at Tinker

Creek--books by naturalists who observe nature vividly and knowingly and who write out of their concern for the environment. Writing intensive.

ENGL 521H - Honors/Nature Writers

Credits: 4.00

See description for ENGL 521. Writing intensive.

ENGL 522 - American Literary Folklore

Credits: 4.00

Folktales, songs, proverbs, beliefs, superstitions, and their use by such American authors as Irving, Hawthorne, Longfellow, Melville, Thoreau, Twain, Frost, and Faulkner; some emphasis on oral folk culture of New Hampshire. Writing intensive.

ENGL 523 - Madness in Literature

Credits: 4.00

How various writers depict insanity, and how they approach the problem of determining what attitudes and what behaviors are truly insane. Emphasis on 19th- and 20th-century works, but works from earlier periods also considered. Euripides' *The Bacchae*, Shakespeare's *King Lear*, Cervantes's *Don Quixote*, Hoffman's *The Golden Pot*, Dostoevsky's *Note from the Underground*, Robbe-Grillet's *The Voyeur*, Nabokov's *Pale Fire*, and other texts. Writing intensive.

ENGL #525 - Popular Culture in America

Credits: 4.00

Cultural expression in popular media. Verbal acts (best sellers, magazines, newspapers, speeches); some attention to television, film, comics, popular music. The multidisciplinary approach deals with historical context, cultural institutions, and distinction between "popular arts" and "great literature." Recurrent images, situations, and themes are investigated to see what values are celebrated and what fears revealed. Writing intensive.

ENGL 526 - Beginning Fiction Writing: From Personal Experience to Fiction

Credits: 4.00

Introduction to aspects of fiction writing.: Specific detail, description, point of view, tense, dialogue, the arc of the story, showing versus telling, structure, and an understanding of how voice and language can be powerful tools in constructing a story. As writers learn to shape their personal experiences into narratives, fictional aspects will be nudged forward. Frequent in class exercises, reading responses and revisions. Prereq: ENGL 401. Special fee. Writing intensive.

ENGL 527 - Introduction to Poetry Writing

Credits: 4.00

Workshop in the fundamental techniques of poetry writing. Class discussion and criticism of poems written by students. Individual conferences with instructor. Prereq: ENGL 401 with a grade of B or better, or equivalent. Special fee. Writing intensive.

ENGL 530 - Introduction to Poetry

Credits: 4.00

American and British poetry. Various poetic techniques and their demonstration. See course descriptions available in department office for further information. (Not offered each semester.) Writing intensive.

ENGL 531 - Introduction to Drama

Credits: 4.00

Introduction to the art of drama, through study of British and American plays, as well as plays translated from other languages. How to read a play. Live and filmed performances studied as available. See course

descriptions available in department office for further information. (Not offered each semester.) Writing intensive.

ENGL 532 - Introduction to Fiction

Credits: 4.00

Introduction to the art of fiction, through the study of British and American novels and/or short stories, as well as prose fiction translated from other languages. Exploration of the ways in which fiction communicates its meanings. See course descriptions available in department office for further information. (Not offered each semester.) Writing intensive.

ENGL 533 - Introduction to Film Studies

Credits: 4.00

A survey of the international development of the motion picture from the silent period to the present, emphasizing film's narrative practices. Introduces students to the study of the art, history, technology, economics, and theory of cinema. Films and film makers of various nations, periods, movements, and genres examined. Mandatory weekly screenings in addition to class. Students cannot receive credit for both ENGL 533 and CMN 550. Special fee.

ENGL 533H - Honors/Introduction to Film Studies

Credits: 4.00

See description for ENGL 533. Special fee. Writing intensive.

ENGL 533W - Introduction to Film Studies

Credits: 4.00

See description for ENGL 533. Special fee. Writing intensive.

ENGL 540 - Introduction to Native American Studies

Credits: 4.00

Introduces the major critical and research methods in Native American literature, history, and culture. Course topics may include literary genres, historical periods, a focus on one particular tribe or culture area, art, and film. (Also offered as AMST 503.) Writing intensive.

ENGL 555 - Introduction to Irish Studies

Credits: 4.00

Introduces the history, literature, and politics of Modern Ireland from the perspective of the central problem in Irish culture: the legacy of both British and Gaelic traditions in the construction of Irish identity. Events covered include the Great Famine, the Irish Revival, and the "Troubles" in Northern Ireland. Authors studied may include Gaelic bards in translation, Swift, Goldsmith, Burke, Edgewood, Stoker, Wilde, Yeats, Joyce, Lady Gregory, Heaney, Friel, McCourt, and Ni Dhomhnaill. Writing intensive

ENGL 555H - Honors/Intro to Irish Studies

Credits: 4.00

See description for ENGL 555. Writing intensive.

ENGL 581 - Introduction to Postcolonial Literatures in English

Credits: 4.00

Survey of contemporary Asian, African, and Caribbean fiction, drama, travelogues, essays, and poetry from the 1950s to the present. Introduces political, historical, and cultural contexts within which these forms are produced. Writing intensive.

ENGL 581H - Honors/Introduction to Postcolonial Literatures in English

Credits: 4.00

See description for ENGL 581. Writing intensive.

ENGL 585 - Introduction to Women in Literature

Credits: 4.00

Survey of images of women in literature. Context and approach vary depending on instructor. Writing intensive.

ENGL 585H - Honors/Introduction to Women in Literature

Credits: 4.00

See description for ENGL 585. Writing intensive.

ENGL 586 - Introduction to Women Writers

Credits: 4.00

Survey of women writers. Content and approach vary depending on instructor. Writing intensive.

ENGL 586H - Honors/Introduction to Women Writers

Credits: 4.00

See description for ENGL 586. Writing intensive.

ENGL 595 - Literary Topics

Credits: 1.00 to 4.00

Various faculty members investigate topics of special interest at a level appropriate for non-majors. Past topics have included Irish literature, animals in literature, and literature of the Vietnam War. See department for details of current offerings. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 595H - Honors/Literary Topics

Credits: 1.00 to 4.00

See description for ENGL 595. Writing intensive.

ENGL 600 - English as a Second Language

Credits: 1.00 to 16.00

Designed for foreign graduate students in their first semester at UNH to give them English language skills necessary for effective graduate work at the university. Includes work on listening skills (understanding lectures, note-taking, etc.), reading skills, the writing of research papers, the making of oral reports, and general study skills, with work on grammar and pronunciation for those who need it. Credits may not be used to fulfill minimum degree requirements of a graduate program. Prereq: graduate students only. May be repeated for a maximum of 16 credits. Cr/F.

ENGL 605 - Intermediate Linguistic Analysis

Credits: 4.00

Introduces analysis methods and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis will be both practical (learning how to describe the grammar and sound system of a language) and theoretical (understanding languages' behavior). Prereq: ENGL/LING 505, or permission. (Also offered as LING 605.)

ENGL 609 - Ethnicity in America: The African American Experience in the 20th Century

Credits: 4.00

Investigation of the music, literature, and social history of African American America in the period of the Harlem Renaissance, in the Great Depression, World War II, and in the 1960s. Special attention to the theme of accommodation with and rejection of dominant white culture. (Also offered as AMST 609, HUMA 609.) Writing intensive.

ENGL 610 - Regional Studies in America: New England Culture in Changing Times

Credits: 4.00

Team-taught course investigating some of the major contributions New England has made to American life. Focusing on three periods: the Puritan era, 1620-90; the Transcendental period, 1830-60; and the period of emerging industrialism in the late 19th century. (Also offered as AMST 610, ARTS 610, HIST 610, and HUMA 610.) Not for art studio major credit. Writing intensive.

ENGL 610H - Honors/Regional Studies in America: New England Culture in Changing Times

Credits: 4.00

See description for ENGL 610. Writing intensive.

ENGL 616 - Studies in Film

Credits: 4.00

Advanced, focused study of the narrative, dramatic, and poetic practices of cinema, within one of four possible subject areas: A) Genre; B) Authorship; C) Culture and Ideology; D) Narrative and Style. Precise issues and methods may vary, ranging from general and specific considerations of how a given subject area involves film theory, criticism, and history, to its use in diverse analyses of selected national cinemas, periods, movements, and filmmakers. Barring duplication of any four of the subject areas, and/or duplication of material taken for credit in CMN 650, course may be repeated for credit. Detailed course descriptions available in English department office during pre-registration. Prereq: ENGL 533, or CMN 550, or permission. Special fee. Writing intensive.

ENGL 616A - Studies in Film/Genre

Credits: 4.00

See description for ENGL 616. Writing intensive.

ENGL 616B - Studies in Film/Authorship

Credits: 4.00

See description for ENGL 616. Writing intensive.

ENGL 616C - Studies in Film/Culture and Ideology

Credits: 4.00

See description for ENGL 616. Writing intensive.

ENGL 616D - Studies in Film/Narrative and Style

Credits: 4.00

See description for ENGL 616. Writing intensive.

ENGL 618 - Film Theory

Credits: 4.00

Examines basic theories of film and their relationship to the practice of close analysis of film. Theories are meant to provide students with a vocabulary for critical analysis and stress the many ways of seeing film. Prereq: ENGL 533 or CMN 550.

ENGL 619 - Critical Approaches to Literature

Credits: 4.00

Selected methods of literary criticism applied to fiction, poetry, and/or drama with critical approaches varying from year to year. A follow-up of 519, course provides a second semester of training in critical reading and writing, and examining such major modern strategies as formalist, biographical, archetypal, psychological, sociological, historical, feminist, and structuralist criticism. Prereq: ENGL 519, 529, or equivalent. Writing intensive.

ENGL 620 - Applied Experience

Credits: 1.00 to 4.00

English department majors who have an opportunity for appropriate career-oriented work experience may arrange with a faculty sponsor to add an academic component. The work must be related to the English major, and the employer must be an established organization approved by Career Services. Research and writing will be required in addition to the job experience. Registration requires permission of employer, faculty sponsor, major advisor, and department chairperson. This course does not count toward the English major. May be repeated with permission to a maximum of 8 credits. Cr/F.

ENGL 621 - Newswriting

Credits: 4.00

Workshops to develop reporting and writing skills. Prereq: B or better in ENGL 501 or equivalent, and written permission of instructor. May be repeated for credit with approval of journalism director. Special fee. Writing intensive.

ENGL 622 - Advanced Newswriting

Credits: 4.00

An intermediate-level workshop on alternative methods of newswriting and the basics of feature writing. Students develop reporting skills while experimenting with styles and forms beyond the inverted pyramid. Prereq: B or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive.

ENGL 623 - Creative Nonfiction

Credits: 4.00

Intensive writing course emphasizing the blend of basic elements that constitute creative nonfiction: research, observation, and personal experience. Also readings and discussion of some of the best published creative nonfiction. Prereq: B or better in ENGL 501 and written permission of the instructor. May be repeated for credit with approval of the journalism director. Special fee. Writing intensive.

ENGL 625 - Intermediate Fiction Writing Workshop

Credits: 4.00

Students continue to explore the aspects of fiction writing. Through short exercises students learn to create visual scenes, integrate exposition with dramatic scene, and construct convincing characters in believable situations. We'll continue to explore the basic elements of what makes a short story, such as point of view, dialogue, dramatization, voice, meaning, language. Students write short stories and significantly revise them. Through discussion of student writing in a workshop format, as well as reading and responding to short stories by published authors, we'll address the questions: What is a short story? How do we create a world in which the reader is fully involved? Where does the story evoke emotion or meaning? Prereq: ENGL 501 or ENGL 525 with a grade of B or better and instructor's permission. Note: ENGL 625 may be taken more than once for credit, in fact, students are encouraged to do so. Special fee. Writing intensive.

ENGL 627 - Intermediate Poetry Writing Workshop

Credits: 4.00

Workshop discussion of poems written by students, with focus on more complex techniques and forms. Individual conferences with instructor. Prereq: ENGL 527 with a B or better, or equivalent. Written permission of instructor required for registration. May be repeated for credit with the approval of the department chairperson. Special fee. Writing intensive.

ENGL 628 - Writing Poetry

Credits: 4.00

See description

ENGL 649 - Studies in British Literature and Culture

Credits: 4.00

Special topics in British studies, varying from year to year. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.

ENGL 650 - Studies in American Literature and Culture**Credits: 4.00**

Special topics in American studies, varying from year to year. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.

ENGL 651 - Comparative Literature**Credits: 4.00**

Comparative studies of major authors representative of important periods of world literary achievement. Homer to Dante; common themes and the development of the epic tradition in early Western literature. Topics and approaches vary from semester to semester. Writing intensive

ENGL 652 - Comparative Literature**Credits: 4.00**

Comparative studies of major authors representative of important periods of world literary achievement. Renaissance to modern. Topics and approaches vary from semester to semester. Writing intensive.

ENGL #655 - Chaucer**Credits: 4.00**

Study of Chaucer's earlier works in the context of their continental sources and analogues. All readings in translation. Writing intensive.

ENGL 657 - Shakespeare**Credits: 4.00**

Ten major plays representative of the main periods of Shakespeare's career and the main types of drama which he wrote (tragedy, comedy, history). Live and filmed performances included as available. Restricted to undergraduates and designed for both English majors and students majoring in other fields. Writing intensive.

ENGL 657H - Honors/Shakespeare**Credits: 4.00**

See description for ENGL 657. Writing intensive.

ENGL 680 - Early British Drama**Credits: 4.00**

A survey of the development of British drama from the Middle Ages to the closing of the theatres in 1642.

ENGL 681 - Introduction to African Literatures in English**Credits: 4.00**

In-depth study of writers, literary movements, political contexts, and historical pressures that have shaped and continue to shape African literatures in the colonial and postcolonial periods. Primary focus on Anglophone texts but possibly some literature in translation. Writing intensive.

ENGL 685 - Women's Literary Traditions**Credits: 4.00**

Intensive study of themes, topics, and techniques in women's literature. Topics vary from year to year. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 685W - Women's Literary Traditions

Credits: 4.00

See description for ENGL 685.

ENGL 690 - Introduction to African American Literature in America

Credits: 4.00

Selected prose, fiction, drama, and poetry. Individual works and historical-cultural background. Course varies from year to year. Writing intensive.

ENGL 693 - Special Topics in Literature

Credits: 4.00

A) Old English Literature, B) Medieval Literature, C) 16th Century, D) 17th Century, E) 18th Century, F) English Romantic Period, G) Victorian Period, H) 20th Century, I) Drama, J) Novel, K) Poetry, L) Nonfiction, M) American Literature, N) A Literary Problem, O) Literature of the Renaissance. The precise topics and methods of each section vary. Barring duplication of subject, course may be repeated for credit. For details, see course descriptions available in the English department. (Not offered every year.) Special fee on some topics. Writing intensive.

ENGL 694 - Special Topics in Literature

Credits: 4.00

See description for ENGL 693. Writing intensive.

ENGL 701 - Advanced Fiction Writing Workshop

Credits: 4.00

Students come to this course with a firm grasp of all the elements of fiction, ready to write short stories that construct convincing characters in believable situations. In a workshop format, students give and receive critiques on classmate's work. Significant revisions of short stories and thorough discussions of work by published authors will round out the course as students continue to explore the art of writing the short story. Students are responsible for leading discussion of published stories. Prereq: ENGL 625 with a grade of B or better and instructor's permission. Special fee. Writing intensive.

ENGL 703 - Advanced Nonfiction Writing

Credits: 4.00

Workshop course for students intending to write publishable magazine articles or nonfiction books. Equal stress on research and writing techniques. Prereq: B or better in ENGL 722 and written permission of instructor. May be repeated for credit with approval of journalism director. Special fee. Writing intensive.

ENGL 704 - Advanced Nonfiction Writing

Credits: 4.00

See description for ENGL 703. Special fee. Writing intensive.

ENGL 705 - Advanced Poetry Writing Workshop

Credits: 4.00

Workshop discussion of advanced writing problems and submitted poems. Individual conferences with instructor. Prereq: ENGL 627, 628, or equivalent with a grade of B or better and written permission of the instructor. May be repeated for credit with the approval of the department chairperson. Special fee. Writing intensive.

ENGL 707 - Fiction: Form and Technique

Credits: 4.00

A writer's view of the forms, techniques, and theories of fiction. The novels, short stories, and works of criticism studied vary, depending on the instructor. Writing intensive

ENGL 708 - Nonfiction: Form and Technique

Credits: 4.00

A writer's view of contemporary nonfiction, emphasizing the choices the writer faces in the process of research writing. (Not offered every year.) Writing intensive.

ENGL 709 - Poetry: Form and Technique

Credits: 4.00

A writer's view of the problems, traditions, and structures of poetry. Writing intensive.

ENGL 710 - Teaching Writing

Credits: 1.00 to 6.00

Introduction to the various methods of teaching writing. Combines a review of theories, methods, and texts with direct observation of teaching practices. Writing intensive.

ENGL 711 - Editing

Credits: 4.00

Emphasis on newspaper editing but principles applicable to magazine and book editing are also covered. Prereq: B or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive.

ENGL #713 - Literary Criticism

Credits: 4.00

Major critics from Plato to the present; the chief critical approaches to literature. (Not offered every year.) Writing intensive.

ENGL #714 - Literary Criticism

Credits: 4.00

See description for ENGL 713. Writing intensive.

ENGL 715 - Teaching English as a Second Language: Theory and Methods

Credits: 4.00

How linguistic, psychological, sociological, and neurological theory influence or even determine the choice methods of language teaching. Research on second language acquisition and bilingualism, language aptitude, and the cultural context of language acquisition. Introduction to standard and exotic methods of language teaching. Writing intensive.

ENGL 716 - Curriculum, Materials and Assessment in English as a Second Language

Credits: 4.00

Study of the problems in designing an effective teaching program for various types of ESL students. Competence and aptitude testing; choosing and adapting materials for ESL classes. Writing intensive.

ENGL 717 - World Englishes

Credits: 4.00

Study of the forms and functions of Englishes in various parts of the world and the linguistic, sociolinguistic, literary, pedagogical, and political implications of the worldwide spread of the language. Topics include language change, language policies, language and power, language and culture, language and identity, literary creativity, and linguistic imperialism. (Also listed as LING 717.) Writing intensive.

ENGL 718 - English Linguistics and Literature

Credits: 4.00

Introduction to linguistics for students of literature. Includes a survey of the grammar of English (phonology, morphology, syntax, dialect variation, historical change) with applications to the analysis of the language of poetry and prose. (Not offered every year.) Writing intensive.

ENGL 719 - Sociolinguistics Survey

Credits: 4.00

How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationship to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq: 505 or permission.

ENGL 720 - Journalism Internship

Credits: 1.00 to 16.00

Students intending to pursue careers in journalism spend a semester working full or part time for a daily newspaper under close supervision of editors. Reporting is stressed, but students may do some editing as well. The number of internships is very limited. Prereq: ENGL 622 required; ENGL 722 recommended; permission. Writing intensive.

ENGL 721 - Advanced Reporting

Credits: 4.00

While the theme of this course is teaching students advanced techniques of writing and reporting, each semester the course is offered it focuses on different areas of journalism. One semester, students may learn multimedia reporting - storytelling across multiple platforms, including video and audio - and in other semesters the course may focus on sportswriting. Yet in others, students will develop their news reporting skills. The course may be taken multiple times for credit with the approval of the Journalism Program Director. Prereq: 'B' or better in ENGL 621 and written permission of instructor. Special fee. Writing intensive.

ENGL 722 - Feature Writing

Credits: 4.00

Students refine interviewing, reporting, and writing techniques. Emphasis on in-depth features. Prereq: B or better in ENGL 621 and 622, and written permission of instructor. Special fee. Writing intensive.

ENGL 723 - Issues in Journalism

Credits: 4.00

This upper-level seminar focuses on the shifts in technology and public perception that are changing the definition of excellence in journalism. Special attention to legal and ethical issues reshaping journalism's public service role. Prereq: Grade of B in ENGL 621 and written permission. May be repeated once for credit with permission of the journalism director. Special fee. Writing intensive.

ENGL 725 - Seminar in English Teaching

Credits: 4.00

In this seminar on teaching English at the middle- and secondary-school levels, students meet the requirements for both English 710, Teaching Writing and English 792, Teaching Secondary School English. The two-semester course integrates the teaching of reading, writing, speaking, and listening, addressing both theoretical and practical issues. Through the study of different approaches, students develop their own philosophies of instruction. Writing intensive.

ENGL 726 - Seminar in English Teaching

Credits: 4.00

See description for ENGL 725. Writing intensive.

ENGL 727 - Issues in Second Language Writing

Credits: 4.00

Study of various issues in second language writing theory, research, instruction and administration. Topics include the characteristics and needs of second language writers, second language writing processes, contrastive rhetoric, grammar instruction, teacher and peer feedback, assessment, course design and

placement. Writing intensive.

ENGL 729 - Special Topics in Composition Studies

Credits: 4.00

Advanced course on a topic chosen by the instructor. Precise topics and methods of each section vary. Possible topics include alternative discourses and rhetorics, contrastive rhetoric, electronic discourse and digital rhetoric, women's rhetorics and feminist pedagogies, Montaigne and the essay tradition, theories of literacy, theories of persuasive writing, theories of transactional writing, and written discourse analysis. Barring duplication of subject, may be repeated for credit. For details see descriptions available in the English Department. Writing intensive when topic is studies in rhetoric and composition.

ENGL 730 - Practicum in Teaching English and the Language Arts

Credits: 1.00 to 6.00

A site-based course for practicing teachers that features in-class observations and demonstrations, individual consultation, and group meetings in the schools. Prereq: permission. May be repeated to a maximum of 8 credits.

ENGL 732 - Folklore and Folklife

Credits: 4.00

Examines the materials and methods used to study folklife, emphasizing the historical context and development of folklore studies in North America and Europe, field research, performance theory, and other topics. (Also offered as ANTH 698.) Writing intensive.

ENGL 733 - Special Studies in Film

Credits: 4.00

Specialized and advanced study in film and cinema studies. Topics vary and may include literature and film, Asian-American film, film genres, and advanced film theory. May be repeated once for credit as long as topics are different. Special fee.

ENGL 733W - Special Studies in Film

Credits: 4.00

See description for ENGL 733. Writing intensive.

ENGL 734 - Special Topics in Literary Theory

Credits: 4.00

Covers various topics dealing with diverse issues in literary and cultural theory. Prerequisite ENGL 619 or equivalent theory/philosophy class. Offered irregularly. For a specific description see English course offerings.

ENGL 738 - Topics in Asian American Studies

Credits: 4.00

Study of the literature, history, scholarship, and current thought by and about Asian America. Representative works from among Japanese Americans, Chinese Americans, Korean Americans, Southeast Asian Americans, and South Asian Americans. (Also listed as AMST 615.) Writing intensive.

ENGL 739 - American Indian Literature

Credits: 4.00

Close study of traditional and/or contemporary American Indian literature and folklore with historical and cultural background. Writing intensive.

ENGL #740 - Indigenous New England

Credits: 4.00

An interdisciplinary introduction to the literatures, histories, and cultures of indigenous people located in what is now called New England. Course topics may include U.S. American Indian policy, tribal government structures and resistance, the history and forms of indigenous literacy, contemporary sovereignty struggles, popular culture, and film. Curricular activity with regional Native people required such as a visit to a Native community, work with tribal guest speakers, participation in a lecture or film series. Special fee. (Also offered as AMST 611.) Writing intensive.

ENGL 741 - Literature of Early America

Credits: 4.00

Prose and poetry of the periods of exploration, colonization, early nationalism, Puritanism, Enlightenment. Individual works and historical-cultural background. (Not offered every year.) Writing intensive.

ENGL 742 - American Literature, 1815-1865

Credits: 4.00

Fiction, nonfiction, and poetry in the period of romanticism, transcendentalism, nationalism. Individual works and cultural background. (Not offered every year.) Writing intensive.

ENGL 743 - American Literature, 1865-1915

Credits: 4.00

Fiction, nonfiction, and poetry in the period of realism, naturalism, industrialism, big money. Individual works and background. Writing intensive.

ENGL 744 - American Literature, 1915-1945

Credits: 4.00

Fiction, poetry, and drama in the period of avant-garde and leftism, jazz age, and Depression. Individual works and cultural background. Writing intensive.

ENGL 745 - Contemporary American Literature

Credits: 4.00

A gathering of forms, figures, and movements since 1945. Individual works and cultural background. Writing intensive

ENGL 746 - Studies in American Drama

Credits: 4.00

Topics vary from year to year. Examples: 20th-century American drama; contemporary playwrights; theatricality in American life. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.

ENGL 747 - Studies in American Poetry

Credits: 4.00

Topics vary from year to year. Examples: poets of the open road, Pound and his followers, major American poets, contemporary American poetry. May be repeated for credit, barring duplication of topic. (Not offered every year.) Writing intensive.

ENGL 748 - Studies in American Fiction

Credits: 4.00

Topics vary from year to year. Examples: the romance in America, the short story, realism and naturalism, the city novel, fiction of the thirties. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 749 - Major American Authors

Credits: 4.00

Intensive study of two or three writers. Examples: Melville and Faulkner; Fuller, Emerson, and Thoreau; James and Wharton; Dickinson and Frost. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 750 - Special Studies in American Literature

Credits: 4.00

Topics vary from year to year. Examples: the Puritan heritage, ethnic literatures in America, landscape in American literature, five American lives, pragmatism, American humor, transcendentalism, women regionalists. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 751 - Medieval Epic and Romance

Credits: 4.00

The two major types of medieval narrative; comparative study of works from England, France, Germany, and Iceland, including Beowulf, Song of Roland, the Nibelungenlied, Njal's Saga, and Malory's Morte d'Arthur. All works read in modern English translations. (Not offered every year.) Writing intensive.

ENGL 752 - History of the English Language

Credits: 4.00

Evolution of English from the Anglo-Saxon period to the present day. Relations between linguistic change and literary style. (Not offered every year.) Writing intensive.

ENGL 753 - Old English

Credits: 4.00

Introduction to Old English language and literature through the reading of selected poetry and prose.

ENGL 754 - Beowulf

Credits: 4.00

A reading of the poem and an introduction to the scholarship. Prereq: ENGL 753. Writing intensive.

ENGL #755 - Chaucer

Credits: 4.00

Troilus and Criseyde, in the context of medieval continental literature by Boccaccio and other influences. Writing intensive.

ENGL 756 - Chaucer

Credits: 4.00

The Canterbury Tales in its original language. Writing intensive.

ENGL 758 - Shakespeare

Credits: 4.00

A few plays studied intensively. Live and filmed performances included as available. Writing intensive.

ENGL 759 - Milton

Credits: 4.00

Milton and his age. Generous selection of Milton's prose and poetry, with secondary readings of his sources and contemporaries. (Not offered every year.) Writing intensive.

ENGL 764 - Prose and Poetry of the Elizabethans

Credits: 4.00

Shakespeare and his contemporaries. Major works, including Spenser's Faerie Queene, Sidney's Astrophel and Stella, and Shakespeare's Sonnets: their literary and intellectual backgrounds. (Not offered every year.) Writing intensive.

ENGL 765 - English Literature in the 17th Century

Credits: 4.00

Major writers of the 17th century, including Donne, Jonson, Herbert, Bacon, and Hobbes. (Not offered every year.) Writing intensive.

ENGL 767 - Literature of the Restoration and Early 18th Century

Credits: 4.00

Poetry, drama, fiction, letters, journals, and essays from the period following the restoration of Charles II to the throne of England after the English Civil War. Works by such figures as John Dryden, Aphra Behn, Daniel Defoe, Jonathan Swift, Alexander Pope, and Lady Mary Wortley Montagu studied in the historical context. Examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.

ENGL 768 - Literature of the Later 18th Century

Credits: 4.00

Poetry, drama, fiction, letters, journals, essays, and biography from the period that culminated in the American and French Revolutions. Works by such figures as Henry Fielding, Samuel Johnson, Frances Burney, Laurence Sterne, William Blake, and Mary Wallstonecraft studied in historical context. Examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.

ENGL 769 - English Romantic Period

Credits: 4.00

Major literary trends and authors, 1798 to 1832. Focus on poetry but attention also to prose works and critical theories. Wordsworth, Coleridge, Lamb, Hazlitt, DeQuincey. (Not offered every year.) Writing intensive.

ENGL #770 - English Romantic Period

Credits: 4.00

Major literary trends and authors, 1798 to 1832. Focus on poetry but attention also to prose works and critical theories. Byron, Shelley, Keats. (Not offered every year.) Writing intensive.

ENGL 771 - English Victorian Period

Credits: 4.00

Fiction, nonfiction, and poetry from 1832-1870. The growth of the city and middle-class life, with particular emphasis on money and love. Authors include Charlotte and Emily Bronte, Charles Dickens, E.B. Browning, A.L. Tennyson. (Not offered every year.) Writing intensive.

ENGL 772 - English Victorian Period

Credits: 4.00

Fiction, nonfiction, and poetry from 1870-1900. The social conflicts created by gender politics and imperial expansion, with particular emphasis on aesthetics and gothic horror. Thomas Hardy, Oscar Wilde, R.L. Stevenson, Bram Stoker. (Not offered every year.) Writing intensive.

ENGL 773 - British Literature of the 20th Century

Credits: 4.00

Poets and novelists of the modernist and postmodernist periods. W.B. Yeats, James Joyce, Virginia Woolf, E.M. Forester, D.H. Lawrence, and other modernists. Writing intensive.

ENGL 774 - British Literature of the 20th Century

Credits: 4.00

Poets and novelists of the modernist and postmodernist periods. A selection of postmodernist or contemporary writers, such as William Golding, Doris Lessing, John Fowles, Philip Larkin, Seamus

Heaney, Margaret Drabble, and others. Writing intensive.

ENGL 775 - Irish Literature

Credits: 4.00

Survey from the beginnings to present; works in Irish (read in translation) such as *The Cattle Raid of Cooley*, medieval lyrics, and *Mad Sweeney*; and works in English from Swift to the present. 20th-century authors: Joyce, Yeats, Synge, O'Casey, Beckett, and Flann O'Brien. (Not offered every year.)

ENGL 777 - Postcolonial Novel

Credits: 4.00

Representative novels from writers such as Salman Rushdie, Amitava Ghosh, Bapsi Sidhwa, R. K. Narayan, Raja Rao, Romesh Gunasekara, Arundati Roy, Mahasweta Devi, U.R. Anantamoorthy, and others. Study of the development of the novel in English in South Asia from the mid-nineteenth century to the present day, Focus is on novels originally written in English; English translations from other South Asian languages when appropriate. Writing intensive.

ENGL 779 - Linguistic Field Methods

Credits: 4.00

Study of a non-Indo-European language by eliciting examples from an informant, rather than from written descriptions of the language. Students learn how to figure out the grammar of a language from raw data. Prereq: ENGL/LING 505. (Also offered as LING 779.) Special fee. (Not offered every year.) Writing intensive.

ENGL 780 - Drama of Shakespeare's Contemporaries

Credits: 4.00

Study of the drama of Renaissance England, emphasizing Tudor and Stuart drama. Special attention to dramatic forms, acting conventions, theatre architecture, women as patrons, writers, and subjects of drama, and the politics and social significance of theatre in the period. Writing intensive.

ENGL #781 - English Drama, 1660-1800

Credits: 4.00

Study of the selected plays, their performance and their publication. Works by such figures as William Wycherley, Thomas Otway, Mary Pix, George Lillo, Susanna Centlivre, Richard Sheridan, and Elizabeth Inchbald. Special attention to the new prominence of women in the drama of this period, changes in theatre architecture, forms of non-dramatic spectacle, and the political and social significance of drama. Writing intensive.

ENGL 782 - Modern Drama

Credits: 4.00

Major English, American, and (translated) European plays of the modern period by such playwrights as Shaw, Ibsen, Chekhov, Strindberg, Pirandello, O'Neill, Brecht, Beckett, Williams, Miller, Pinter. Live and filmed performances studied as available. (Not offered every year.) Writing intensive.

ENGL 783 - English Novel of the 18th Century

Credits: 4.00

Study of the rise and development of the novel in the eighteenth century. Works by such figures as Daniel Defoe, Eliza Haywood, Samuel Richardson, Henry Fielding, Charlotte Lennox, Laurence Sterne, Frances Burney, and Jane Austen. Focus on writers who published their work in England but with examples from the colonial world and the continent (in translation) when appropriate. Writing intensive.

ENGL 784 - English Novel of the 19th Century

Credits: 4.00

Representative novels from among Austen, Scott, Dickens, Thackeray, Emily Bronte, Charlotte Bronte, Trollope, George Eliot, Hardy, and Conrad. Writing intensive.

ENGL 785 - Major Women Writers

Credits: 4.00

Intensive study of one or more women writers. Selections vary from year to year. May be repeated for credit, barring duplication of topic. Writing intensive.

ENGL 786 - 20th Century British Fiction

Credits: 4.00

Traces the development of the novel from the turn of the century to the present day. Representative novels by Lawrence, Joyce, Conrad, Woolf, West, Forester, Huxley, Waugh, Murdoch, Burgess, and Lessing. Writing intensive.

ENGL 787 - English Major Seminar

Credits: 4.00

Intensive study of specialized topics that vary from year to year. Enrollment in each seminar is limited to 15 so that all students can take an active part in discussion and work closely with the instructor on their papers. Prereq: a grade of B or better in ENGL 419, and permission. For details, see course description available in the department office. Writing intensive.

ENGL 788 - Senior Honors

Credits: 4.00

Open to senior English majors who, in the opinion of the department, have demonstrated the capacity to do superior work; permission required. An honors project consists of supervised research leading to a substantial thesis or writing of poetry or fiction portfolio. Required of students in the honors in major program. (Not offered every year.) Writing intensive.

ENGL 790 - Special Topics in Linguistics

Credits: 4.00

Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as LING 790.) Writing intensive.

ENGL 791 - English Grammar

Credits: 4.00

Survey of the grammar of English (pronunciation, vocabulary, sentence structure, punctuation, dialect variation, historical change) with special attention to the distinction between descriptive and prescriptive grammar and to the problems students have with formal expository writing. Writing intensive.

ENGL 792 - Teaching Secondary School English

Credits: 4.00

Methods of teaching language, composition, and literature in grades 7-12. Required of all students in the English teaching major. Open to others with permission. Writing intensive.

ENGL 793 - Phonetics and Phonology

Credits: 4.00

The sound system of English and other languages as viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as

stress and intonation. (Also offered as LING 793.) Prereq: a basic linguistics course or permission.

ENGL 794 - Syntax and Semantic Theory

Credits: 4.00

Relationship of grammar and meaning as viewed from the standpoint of modern linguistic theory. Emphasizes the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. (Also offered as LING 794.) Prereq: a basic linguistics course or permission. Writing intensive.

ENGL 795 - Independent Study

Credits: 1.00 to 4.00

Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit up to a maximum of 8 credits. Writing intensive.

ENGL 797 - Special Studies in Literature

Credits: 2.00 to 6.00

A) Old English Literature, B) Medieval Literature, C) 16th Century, D) 17th Century, E) 18th Century, f) English Romantic Period, G) Victorian Period, H) 20th Century, I) Drama, J) Novel, K) Poetry, L) Non-fiction, M) American Literature, N) A Literary Problem, O) Literature of the Renaissance. The precise topics and methods of each section vary. Barring duplication of subject, may be repeated for credit. For details, see the course descriptions available in the English department. Special fee on some topics. Writing intensive.

ENGL 798 - Special Studies in Literature

Credits: 2.00 to 6.00

See description for ENGL 797. Writing intensive.

Environmental&Resource Econ

EREC 409 - Catastrophe and Terrorism

Credits: 4.00

Impacts of terrorism and natural and non-natural catastrophes on infrastructure, public and private policy, and the economy. Analysis of case studies and research data is emphasized. Invited speakers complement lectures and assignments.

EREC 411 - Environmental and Resource Economics Perspectives

Credits: 4.00

Microeconomic theory and analysis in resource management and use decisions. Survey of significant resource problems from an economic perspective and the application of economic analysis. Cannot be taken for credit after ECON 402 or equivalent. Special fee.

EREC 501 - Agriculture and Natural Resource Product Marketing

Credits: 4.00

Structure, organization, strategies and performance of the business sector in agriculture, forestry, and other local natural resource-based industries; commodity marketing systems; demand estimation, pricing policies, consumer characteristics, and related topics. Prereq: EREC 411 or equivalent;/or permission. (Offered every other semester.)

EREC 504 - Business Management for Natural Resource Firms

Credits: 4.00

Planning, operation, and control of natural resource-based firms with direct application to agriculture, aquaculture, forestry, and recreational businesses. Emphasis on decision making, problem solving, and operational strategies. Prereq: EREC 411 or equivalent. Lab.

EREC 525 - Statistical Methods and Applications

Credits: 4.00

Applications of elementary statistical concepts and methods including probability, descriptive techniques, statistical inference and bivariate and multivariate statistical analysis. Orientation is toward analysis and interpretation of data commonly encountered in social science disciplines. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; HHS 540; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502.

EREC 572 - Introduction to Natural Resource Economics

Credits: 4.00

Introduces theory, methods of analysis, and current literature of natural resource economics and policy. Topics include multiple use, taxation, optimal harvest scheduling, market failure, property rights, public goods, benefit-cost analysis, amenity values, non-market resource services and natural resource policy. Topics applied to forests and forestry, wildlife management, outdoor recreation, public lands, agriculture, fisheries, water, energy and mining/nonrenewable resources.

EREC 595 - Problems in Natural and Agricultural Resources

Credits: 2.00 to 4.00

Students pursue field, laboratory, or library problems in natural and environmental resources that are not covered by other courses. Faculty consultant and study topic must be chosen before registration. In consultation with the faculty adviser, students select the problem area, create a bibliography for reflection, and pursue the topic. A professionally written paper is expected at termination of the study. May be

repeated once for credit. Prereq: permission.

EREC 595W - Problems in Natural and Agricultural Resources

Credits: 2.00 to 4.00

See description for EREC 595. Writing intensive.

EREC 596 - Problems in Natural and Agricultural Resources

Credits: 2.00 to 4.00

See description for EREC 595.

EREC 596W - Problems in Natural and Agricultural Resources

Credits: 2.00 to 4.00

See description for EREC 596. Writing intensive.

EREC 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

EREC 600W - Field Experience

Credits: 1.00 to 4.00

See description for EREC 600. Cr/F. Writing intensive.

EREC 606 - Land Economics Perspectives: Uses, Policies, and Taxes

Credits: 4.00

Economic and institutional perspectives affecting human use of land resources; discussion of land ownership patterns and uses; land rent, location, and resource use; institutional constraints; partial ownership policies; and local planning for more efficient use of land. Real estate markets, transfers, valuation, and taxation. Prereq: EREC 411 or equivalent or permission. Special fee.

EREC 627 - Community Economics

Credits: 4.00

Economic factors affecting community and local government decisions. Emphasizes use of economic theory for decision making and community problem solving. Prereq: EREC 411 or equivalent.

EREC 633 - Economics of Travel and Tourism

Credits: 4.00

Provides an understanding of both the microeconomic and macroeconomic aspects of travel and tourism. Using economics as a theory base, the course attempts to identify what is significant or special about travel and tourism compared with other activities. Special attention is given to issues such as resource immobility, capacity constraints, seasonality, and consumers' inability to experience the product before purchase. Prereq: EREC 411 or equivalent. (Also offered as TOUR 633.)

EREC 680 - Agricultural and Food Policy

Credits: 4.00

Analysis of issues that led to government involvement in the agricultural and food sector. Application of economic concepts and tools to the evaluation of public policies affecting agriculture and food.

EREC 708 - Environmental Economics

Credits: 4.00

Environmental pollution, the market economy, and optimal resource allocation; alternative control procedures; levels of environmental protection and public policy; property right issues. Prereq: intermediate microeconomic theory; permission. Writing intensive.

EREC 710 - Seminar

Credits: 2.00 to 4.00

Seminars arranged to students' needs and offered as demand warrants: A) Rural Development, B) Marine Economics, C) Community Economics, D) Land and Water Economics, E) Quantitative Methods, F) Recreation Economics, G) Small Business Economic and Managerial Issues. In-depth treatment of area, including classic works. May be repeated.

EREC #715 - Linear Programming and Quantitative Models

Credits: 4.00

Solving applied economic problems using linear and nonlinear techniques with emphasis on problem specification and interpretation of model results. Unit of analysis includes individuals, firms, or communities as they address contemporary problems dealing with resource allocation, product distribution, and whole-firm organization. Computer applications on both mainframe and personal computers utilized for managerial decision making. Project required. Prereq: permission. Writing intensive.

EREC 756 - Rural and Regional Economic Development

Credits: 4.00

Concepts and methods of delineating regional economies, methods of measuring activity, regional development, and public policies. Emphasizes empirical research studies. Prereq: intermediate economic theory or permission. Writing intensive.

EREC 775 - Research Methods

Credits: 4.00

Study of the process, methods, and techniques of conducting scientific research in the social sciences. Includes problem identification, data collection and management, qualitative quantitative data analyses, and communicating scientific research. Prereq: EREC 411 or equivalent; EREC 525 or equivalent; junior/senior standing.

EREC 795 - Investigations

Credits: 2.00 to 4.00

Special assignments in readings, investigations, or field problems. Topics may include agricultural marketing, agricultural production and farm management, community development, economics of human resources, economics of population and food, land economics, marine economics, rural economic development, regional economics, water economics, or teaching experience. Prereq: permission. May be repeated.

EREC 795W - Investigations

Credits: 2.00 to 4.00

See description for EREC 795. Writing intensive.

EREC 799 - Honors Senior Thesis

Credits: 4.00

Students develop and conduct individual research projects related to applied resource economics under the direction of a senior thesis committee. The resulting written thesis is defended in an oral presentation before departmental faculty and students. Prereq: permission, majors only, senior standing. Writing intensive.

Environmental Engineering

ENE 400 - Environmental Engineering Lectures I

Credits: 1.00

Introduces the profession, the environmental engineer as planner, designer, problem solver, and interdisciplinary team player; and the goals of the environmental engineering curriculum. Lectures by faculty and practitioners. Introduction to computer skills required for environmental engineering. Engineering ethics. Cr/F.

ENE 401 - Environmental Engineering Lectures II

Credits: 1.00

Introduces the concept of integrated design and project planning and management in environmental engineering. Field trips to environmental engineering sites and projects. Prereq: ENE 400. Cr/F.

ENE 520 - Environmental Pollution and Protection: A Global Context

Credits: 4.00

Introduces environmental science and engineering and the anthropogenic causes of environmental change. Emphasizes the causes, effects, and controls of air, water, and land pollution. The political, ecological, economic, ethical, and engineering aspects of environmental pollution and control are discussed. Field trips. Writing intensive.

ENE 521 - Seminar

Credits: 1.00

Introduces the fundamentals of environmental and occupational health, water quality modeling, and atmospheric systems and air pollution control. Prereq: ENE 520, MATH 426, CHEM 404, PHYS 407.

ENE 612 - Unit Operations Laboratory I

Credits: 3.00

Selected experiments in fluid mechanics, heat transfer, and unit operations, with emphasis on environmental engineering. Writing intensive.

ENE 645 - Fundamental Aspects of Environmental Engineering

Credits: 4.00

Application of fundamental concepts of mass balance in treatment processes. Physical, chemical, and biological aspects of pollution control, and design concepts for operations and processes used in environmental engineering are discussed. Concepts of engineering ethics are presented. Students participate in a design project that involves an oral presentation and written report. Prereq: CHEM 404, CIE 642, ENE 520; or permission. Writing intensive

ENE 696 - Field Experience

Credits: 1.00

Based on appropriate career-oriented work experience in environmental engineering. Student can get one credit for field experience. A written final report is required as well as permission of student's adviser.

ENE 697 - Internship

Credits: 2.00

Off-campus work in the environmental engineering field for on-the-job skill development. Needs to be supervised by an environmental engineering faculty member; and a proposal for the internship must be submitted and have permission of the ENE faculty prior to the start of the internship. Prereq: permission. IA

(continuous grading).

ENE 708 - Industrial Process and Design

Credits: 4.00

Introduces cost engineering. Application of acquired skills to design of chemical processes. Individual major design project required. Safety for industrial processes. Lab. (Also offered as CHE 708.) Writing intensive.

ENE 709 - Fundamentals of Air Pollution and Its Control

Credits: 4.00

The origin and fate of air pollutants. Fundamentals of atmospheric meteorology, chemistry, and dispersion phenomena. Control of air pollutants and the related equipment. Current issues. Prereq: MATH 527; CHEM 404. Lab.

ENE 713 - Unit Operations Laboratory II

Credits: 3.00

Selected experiments in mass transfer, stagewise operations, thermodynamics, and kinetics with emphasis on environmental engineering. Writing intensive.

ENE 740 - Public Health Engineering

Credits: 3.00

Proper application of environmental engineering and sanitation principles in disease prevention and control is discussed. Special emphasis given to rural communities and areas of the world where communicable and related diseases have not yet been brought under control, and to what can happen in the more advanced countries when basic sanitary safeguards are relaxed. Topics covered: vector-borne diseases and control, safe water supply development and treatment, and on-site wastewater disposal systems. Prereq: MATH 425, ENE 520.

ENE 742 - Solid and Hazardous Waste Engineering

Credits: 3.00

A thorough examination of the problems that exist in hazardous and solid waste management are presented in terms of the current regulations and engineering approaches used to develop solutions. Topics include risk-based decision making, transport and fate of contaminants, and the fundamental physical, chemical, and biological concepts, which make up the basis for technological solutions to these waste management problems. Case studies are used throughout the course to highlight key concepts and provide real-world examples. Pre- or Coreq: ENE 645 or permission.

ENE 743 - Environmental Sampling and Analysis

Credits: 4.00

Theory of analytical and sampling techniques used in environmental engineering. Topics include potentiometry, spectroscopy, chromatography, automated analysis, quality control, sampling design, and collection methods. Methods discussed in lecture are demonstrated in labs. Prereq: CHEM 404 and ENE 645 or permission. Lab. Writing intensive.

ENE 744 - Physicochemical Treatment Design

Credits: 4.00

Selection, design, and evaluation of advanced unit processes employed in physicochemical treatment of waters, wastewaters, and hazardous wastes. Discusses preparation of alternative designs and economic analysis. Emphasizes treatment schemes based on experimental laboratory or pilot studies. Prereq: ENE 645, 749 or permission. Lab.

ENE 746 - Bioenvironmental Engineering Design

Credits: 4.00

Selection, design, and evaluation of unit processes employed in biological treatment of waters, wastewaters, and hazardous wastes. Preparation of engineering reports, including developing design alternatives and economic analysis, is required. Prereq: ENE 645 and ENE 756 or permission. Writing intensive.

ENE 747 - Introduction to Marine Pollution and Control**Credits: 4.00**

Introduces the sources, effects, and control of pollutants in the marine environment. Dynamic and kinetic modeling; ocean disposal of on-shore wastes, shipboard wastes, solid wastes, dredge spoils, and radioactive wastes; and oil spills. Prereq: ENE 645 or permission.

ENE 748 - Solid and Hazardous Waste Design**Credits: 4.00**

Selection, design, and evaluation of unit processes employed in the treatment of solid wastes and hazardous wastes will be studied. Topics include design of materials recovery facilities, landfills, waste-to-energy facilities and hazardous waste site remedial technologies. A group term project taken from a real-world project will be required. An oral presentation by the group and preparation of a final written engineering report including alternative evaluation, permits, scheduling and economic analysis will be required from each group. Prereq: ENE 742 or permission. Writing intensive.

ENE 749 - Water Chemistry**Credits: 4.00**

Emphasizes the use of chemical equilibrium principles and theory, calculations, and applications of ionic equilibrium stresses. Topics include thermodynamics, kinetics, acid/base, complexation, precipitation/dissolution, and redox equilibria. Computer equilibrium modeling is presented. Prereq: CHEM 404 or CHEM 405.

ENE 751 - Introduction to Sustainable Engineering**Credits: 3.00**

This course begins with exploration of the precept that we live in, and must design engineering works for, a world with a finite supply of natural resources and with limited life support capacity. Tools for sustainability engineering are the focus of the course, which includes life cycle analysis and life cycle impact analysis, the metrics and mass and energy flow analyses used in the field of industrial ecology, and environmental management systems.

ENE 752 - Process Dynamics and Control**Credits: 4.00**

Dynamic behavior of chemical engineering processes described by differential equations, feedback control concepts and techniques, stability analysis, application in pollution control. Lab. (Also listed as CHE 752.)

ENE 756 - Environmental Engineering Microbiology**Credits: 4.00**

Concepts of environmental engineering microbiology. Topics include taxonomy of species important in environmental engineering processes; microbial metabolism, interaction, and growth kinetics in environmental treatment processes; biogeochemical cycling in water; and effects of environmental parameters on environmental engineering microbial processes. Laboratories focus on microbiological methods and laboratory-scale biological treatment experiments. Prereq: ENE 520 and CIE 642 or permission. Lab. Writing intensive.

ENE #772 - Physicochemical Processes for Water and Air Quality Control**Credits: 4.00**

Origin and characterization of pollutants. Controls, including filtration, sedimentation, coagulation and flocculation, absorption and adsorption. Applied fluid mechanics, mass transfer, and kinetics. Thermal pollution, chemical treatment, oil spills on water, and aeration. Lab.

ENE 784 - Introduction to Project Planning and Design

Credits: 1.00

Part one of a two part sequence. Student groups develop a project statement to address a significant environmental engineering system design. Each team prepares a project plan to be executed in ENE 788, part two of this sequence. Cr/F.

ENE 788 - Project Planning and Design

Credits: 3.00

Student groups formed in multidisciplinary design teams to prepare a design plan for a large-scale environmental engineering system including consideration of budgetary constraints, regulatory requirements, and environmental impacts. Each team prepares a final written report and gives a formal presentation. Prereq: senior environmental engineering major or permission. Writing intensive.

ENE 795 - Independent Study

Credits: 1.00 to 4.00

A limited number of qualified seniors is permitted to pursue independent studies under ENE faculty guidance. Seniors write terminal thesis reporting the results of their investigations. May be repeated to a maximum of 4 credits. Prereq: permission of ENE faculty member involved.

ENE 797 - Special Topics

Credits: 1.00 to 4.00

Advanced or specialized topics not normally covered in the regular course offerings. May be repeated to a maximum of 4 credits, but not in duplicate areas. Prereq: permission.

ENE 799H - Senior Honors Thesis

Credits: 4.00

Students in the honors program in environmental engineering complete a project under the direction of a faculty sponsor resulting in a written thesis which must be accepted by the sponsor by the end of the second semester, senior year. Four credits total during senior year; 3 of which may be used to fulfill an ENE non-design elective.

European Cultural Studies

ECS 400 - Europe

Credits: 4.00

Introduction to the European Cultural Studies major. Outlines the general patterns of change and explores some of the local themes and variations in different parts of Europe. Students become aware of the social, political, literary, artistic and cultural issues that contributed to Europe's identity formation. Special fee.

ECS 500 - Proseminar

Credits: 4.00

The Proseminar aims to expose students to a variety of approaches in the Cultural Studies field, drawing on different disciplines and focusing on representative themes within cultural studies.

ECS 550 - Critical Methods in Cultural Studies

Credits: 4.00

Critical analysis of works in Cultural Studies. Focus on major texts, evaluation of secondary texts, research writing, criticism. Required of all ECS majors. (Also listed as HUMA 500.)

ECS 798 - Thesis Research

Credits: 1.00

Part of a two-semester capstone experience for the ECS major. Students work with their advisors and peers to formulate their topic, consider appropriate approaches, locate relevant resources, and prepare a bibliography for a thesis paper on a topic related to European Cultural Studies. During the course of the semester, students meet regularly with their advisor to discuss research materials. If time permits, students also plan the outline of the thesis.

ECS 799 - Senior Thesis

Credits: 3.00 to 4.00

Part of a two-course capstone experience for the ECS major. Students work with their advisors and peers to formulate their topic and write a major research paper, between 25 and 50 pages long, on a topic related to European Cultural Studies. During the course of the semester, students meet regularly with their advisor to discuss the outline and rough draft of the thesis, and to go over revisions to the paper. The course culminates in the defense of the thesis before a committee of three ECS faculty members. If student schedules permit it, we also hold meetings of all seniors who are currently writing an ECS thesis so that students may exchange ideas and offer peer feedback to each other. Pre - or Coreq: ECS 798. Writing intensive.

Family Studies

FS 444 - We Don't All Play the Violin: Stories and Stereotypes of Asians in America

Credits: 4.00

An interdisciplinary course that examines perceptions of difference and foreign culture through and exploration of the process of emigration of Chinese, Japanese, Cambodian, and Vietnamese families from Asia to America and their experiences here. Class considers history, economics, state and national legislation and regulations, politics, art, gender and generational differences, and family relationships, as well as North American American reactions to the presence of Asians, how stereotypes by both Asians and Americans were developed, and their impact on family members. Writing intensive.

FS 444A - Suffer the Little Children: Sexual Molestation Outside the Home

Credits: 4.00

This course considers child sexual molestation in the Boy Scouts, YMCA's, and churches. Child pornography, prostitution, trafficking, and slavery are also explored. Together we will try to answer the following six questions: Who is at risk of molestation,? How are children molested? Where are they molested? Who molests children and why do they molest them? What are the impacts on children and society? What responsibilities do adults and institutions have to protect children?

FS 525 - Human Development

Credits: 4.00

Developmental information from conception through death; theoretical perspectives and research methods in human development; emphasis on student's communication and analytical skills.

FS 525H - Honors/Human Development

Credits: 4.00

See description for FS 525.

FS 545 - Family Relations

Credits: 4.00

Theories and research relating to the family and its role in individual development.

FS 553 - Personal and Family Finance for Family Life Professionals

Credits: 4.00

Applied financial management emphasizing teaching financial issues to a variety of audiences. Topics include savings, credit, insurance and retirement, and programs and resources available to facilitate financial education.

FS 565 - Introduction to Child Life

Credits: 4.00

When facing acute, chronic, or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments, and specializations within the field. Permission required. (Also listed as RMP 565).

FS 605 - Child Study and Development Center Field Experience

Credits: 2.00 to 6.00

Supervised experience in the UNH Child Study and Development Center with children infancy-

kindergarten, intended for students interested in early education and development. Weekly 3 hours per credit on site engaged in classroom activities as contracted with supervisor. Regular journaling and a final integrative paper on a classroom topic of interest are required. Not open to FS majors. Prereq: a minimum of 12 credits in child development and education (3 credits may be taken concurrently with FS 605), and permission. Materials fee. May be repeated up to a total of 8 credits. Cr/F.

FS 623 - Developmental Perspectives on Infancy and Early Childhood

Credits: 4.00

Integrative view of the developing child from conception through childhood within the family context.

Prereq: FS 525

FS 624 - Developmental Perspectives on Adolescence and Early Adulthood

Credits: 4.00

Developmental information from pubescence through early adulthood; the concept of identity and influences on identity formation.

FS 635 - Teaching and Learning in Early Childhood Settings

Credits: 4.00

Current theoretical approaches to communicating with children and influencing their behavior. Weekly four-hour laboratory experience working with preschool children is required at UNH Child and Family Center.

Weekly three-hour seminar. Prereq: FS 525, FS 623; permission. Special fee.

FS 641 - Parenting Across the Life Span

Credits: 4.00

Examination of parent-child relations across a range of developmental time periods and situations.

Explores issues affecting parent-child relationships. Prereq: FS 525, 545, permission.

FS 653 - Family Economics

Credits: 4.00

Exploration of family economics and well being; public policy and family structure influences on the economic well being of families. Prereq: FS 545. Writing intensive.

FS 695 - Independent Study

Credits: 1.00 to 6.00

Scholarly project in the area of child, family, and consumer studies. Regular conferences with supervising faculty required. Prereq: approval of departmental faculty.

FS 697 - Special Topics

Credits: 1.00 to 6.00

Focused examination of a particular theoretical, methodological, or policy issue. May be repeated to a maximum of 8 credits. Prereq: permission. Writing intensive.

FS 707 - Practicum

Credits: 1.00 to 6.00

Supervised in-depth experience in teaching, research, or advocacy in a professional setting to increase the student's understanding of children, families, or consumer issues. A) Child, B) Family, C) Consumer Studies. Prereq: FS major; permission. Special fee. Cr/F.

FS 708 - Nursery Program Internship

Credits: 3.00 to 6.00

Supervised internship in the UNH Child Study and Development Center part-time nursery programs with children 2-5 years of age. 1) 2-3 year-olds Intern, 2) Preschool Intern. In the role of Assistant Teacher,

weekly three hours per credit on site engaged in planning, documentation, teaching, and assessment. For section 1) 2-3 year-olds intern, must be taken concurrently with FS 709A. Child Development Internship Seminar (1cr) unless completed previously. Prereq: FS 525; FS 623; FS 635; and permission. Materials fee. Cr/F: may be repeated up to a total of 8 credits. Special fee.

FS 709A - Child Development Internship Seminar

Credits: 1.00

On-site weekly one hour seminar for in-depth reflection and analysis of internship experience with young children at the UNH Child Study and Development Center. Reading and projects required. Must be taken concurrently with either FS 708 or FS 709B internships. Cr/F; may be repeated up to a total of 2 credits. Special fee.

FS 709B - Child Development Internship

Credits: 3.00 to 6.00

Supervised internship in the UNH Child Study and Development Center full-day programs with children infancy-6 years of age: 1) Infant/Toddler Intern, 2) Preschool Intern and 3) Kindergarten Intern. Weekly three hours per credit on-site engaged in planning, documentation, teaching, and assessment. Must be taken concurrently with FS 709A. Child Development Internship Seminar (1cr) unless completed previously. Prereq: FS 525; FS 623; FS 635; and permission. Materials fee. Cr/F; may be repeated up to a total of 8 credits. Special fee.

FS 710 - Community Internship

Credits: 1.00 to 12.00

Supervised position in community early childhood settings. A) Infant-toddler assistant; B) Preschool-child care assistant; C) Kindergarten assistant; D) Child Life. May be repeated up to a total of 12 credits. Prereq: permission. Cr/F.

FS 712 - Child Advocacy and Family Policy Internship

Credits: 4.00 to 8.00

Supervised experience working in state, federal, international, or state-wide advocacy organization or agency that advocates for children and/or families. Students spend a required number of hours per week in their selected program, based on the number of credit hours. (Spring semester, possibly Summer). Prereq: FS major; senior status; FS 525; 545; 28 credit hours of family studies coursework; permission. May be taken for 4 to 8 credits. Cr/F.

Co-requisites: FS 714

FS 714 - Seminar for Child Advocacy and Family Policy Interns

Credits: 2.00

This biweekly seminar focuses on issues of concern to child advocacy and family policy internship students, and develops students' professional skills. Prereq: FS major, senior status; permission. (Spring semester, possibly Summer).

Co-requisites: FS 712

FS 733 - Supervising Programs for Young Children

Credits: 4.00

Philosophical bases and theoretical rationales of various programs for young children; program alternatives and resources; issues in administration including supervision, finances, and regulations. Prereq: permission. (Fall semester only.) Writing intensive.

FS 734 - Curriculum for Young Children

Credits: 4.00

Designing and implementing developmentally appropriate activities for young children; assessing the

effectiveness of activities; evaluating materials and equipment. Prereq: FS 525; 623; 635. (Spring semester only.) Writing intensive.

FS 743 - Families, Schools, and Community

Credits: 4.00

Emphasizes the critical value of effective family-school-community partnerships in enhancing the education of young children. The literature assessing the interactive nature of parent and school resources with cultural influences is examined. Current models of family-school-community partnerships are explored. Students participate in parent/school/community activities within early childhood education centers and schools. Prereq: permission. Writing intensive.

FS 746 - Human Sexuality

Credits: 4.00

Investigation of physiological, psychological, and sociological aspects of human sexuality. Particular attention to various social practices, policies, and programs that affect sexual attitudes and behaviors.

FS 750 - Contemporary Issues in Adolescent Development

Credits: 4.00

Focuses on contemporary adolescents and their development within the contexts of families, schools, and the larger community. The course familiarizes students with major theoretical perspectives regarding adolescent development and provides an overview of current research on critical issues facing adolescents, their parents, and professionals who work with adolescents. Problems and risks will be addressed, but the major emphasis will be on maximizing strengths and opportunities.

FS 757 - Race, Class, Gender, and Families

Credits: 4.00

Explores the intersection of race, class, and gender in family life in the U.S. Theory, research, and other relevant literature is used to examine the variety of family configurations in our society today and the diverse experiences that families have as a result of existing social, political, and economic institutions. The strengths of various family types are considered, as well as the particular challenges these families may encounter in contemporary society. Prereq: seniors or graduate students only; permission. Writing intensive.

FS 760 - Family Programs and Policies

Credits: 4.00

Analyzes the connection between family support programs and family policy. Stresses program planning, implementation, and evaluation. Examines the research, theory, history, and current status of model family programs. Prereq: FS 545; permission. Writing intensive.

FS 771 - Observation and Assessment of Young Children

Credits: 4.00

Comprehensive view of various observation techniques for determining children's strengths and emerging skills. Exploration of issues regarding the use of formal assessments and testing with young children, retention and transitional placements, and the parent's role in testing. Prereq: FS 525; 623; 635. (Fall semester only.)

FS 772 - International Approaches to Child Advocacy

Credits: 4.00

An investigation into the rationales for advocacy, types of advocacy, advocacy techniques and strategies, and current domestic and international advocacy issues and approaches. Prereq: seniors only; permission. Writing intensive.

FS 773 - International Perspectives on Children and Families

Credits: 4.00

An investigation of historical and modern conceptions of children and families in selected African, Asian, European, and Latin countries. Emphasis is placed on the contribution of these populations to the changing ethnic portrait of America. Prereq: seniors only. Writing intensive

FS 776 - Children, Adolescents and the Law

Credits: 4.00

This course is designed to familiarize students with the specialized laws and adjudicative systems that govern children, adolescents and families and reflect society's effort to balance competing interests and goals. It provides the chance to explore laws and processes that affect children and adolescents as they interact with their caregivers, families and society at large. Prereq: FS 525, 545 and FS 623 or 624; permission of instructor.

FS 782 - Family Internship

Credits: 6.00

Supervised experience working in social, legal, and marketplace settings that offer services to families. Students spend a minimum of 15 hours per week in a selected community program. Admission by application only. Applications due prior to registration spring semester of the junior year. A senior-level course with 6 credits being taken each semester. Prereq: FS major; senior status; FS 525; 545; 20 credit hours of family studies course work; permission. Pre- or Coreq: FS 760. IA (continuous grading). Cr/F.

Co-requisites: FS 792

FS 785 - Seminar for Student Teachers

Credits: 2.00

Supplements the student teaching experience and effects a transition to the profession of teaching for those students admitted to the early childhood certification option.

FS 786 - Seminar for Student Teachers

Credits: 2.00

See description for FS 785.

FS 788 - Student Teaching Young Children

Credits: 8.00

Supervised teaching experience. Students spend a minimum of 20 hours per week in a selected program for young children working with a cooperating teacher. Students must apply during the fall semester of their junior year. Prereq: FS major; FS 525; 545; 623; 635; 733; 734; 743; EDUC 706; KIN 675; MATH 601; THDA 520; permission. Coreq: FS 785-786. (Spring semester only.) Special fee. Cr/F.

FS 792 - Family Internship Seminar

Credits: 2.00

This biweekly seminar focuses on issues of concern to family internship students, provides advanced training in educational strategies for working with families, and develops students' professional skills. This is a two-semester course with 2 credits being taken each semester. Prereq: FS major; admission to family internship program; permission. (Fall and spring semester.) IA (continuous grading). Writing intensive.

Co-requisites: FS 782

FS 794 - Families and the Law

Credits: 4.00

Exploration of laws effecting families and the interaction of family members with each other and with society. Prereq: FS 545. Writing intensive.

FS 797 - Advanced Special Topics**Credits:** 1.00 to 6.00

Highly focused examination of a particular theoretical, methodological, or policy issue. Prereq: permission.

FS 799 - Honors Senior Thesis**Credits:** 2.00 to 4.00

Under direction of a faculty sponsor, students plan and carry out an independent investigative effort in an area of family, child, and/or consumer studies, resulting in a written thesis and an oral presentation before students and faculty. Prereq: majors only; senior standing; permission. Two-semester sequence as continuing course.

Food Service Management

FSM 200 - Introductory Chemistry

Credits: 3.00

Introduces chemical concepts and principles, including chemical symbols, conversion factors, chemical calculations, chemical and physical properties, and changes. Touches upon organic compounds--their structure, major reactions, and applications--followed by an elementary introduction to biomolecules and how they function in metabolism. Dietetic technician majors only. 3 lec.

FSM 201 - Food Preparation Fundamentals

Credits: 2.00 or 3.00

Preparation techniques, knife skills, measurements, food handling, selection, and classification. FSM majors only. 2hr lec. Restaurant Management majors must also complete a lab. Practical application of skills and techniques utilized in a professional kitchen. 2hr lab.

FSM 202 - Quantity Foods Practicum

Credits: 3.00

Students utilize cooking principles and food preparation techniques learned in FSM 201 to produce foods in a quantity food setting. Elements of food sanitation and workplace safety in the operation of commercial cooking equipment is stressed. Students operate Stacey's Express, open to the public and participate in various positions such as production manager, cashier, production cooks, and utility workers. Students standardize, cost, and assign selling prices for all menu items prepared for Stacey's Express. Prereq: FSM 201.

FSM 203 - Introduction to Restaurant and Hospitality Management

Credits: 3.00

This first-semester course introduces students to the field of hospitality and restaurant management. Topics discussed include: forms of business, employment opportunities in the in the field, social and environmental responsibility and ethics, as well as the future of the restaurant and industry. 3 1-hr lec.

FSM 204 - Baking and Pastry Products

Credits: 4.00

Course presents hands-on fundamental approaches to general baking and pastry production. The first three classes are demonstrations followed by 12 weeks of demonstrations and practical, hands-on laboratory experience. Activities may include make-up of pie dough, rolling, molding and piping exercises, weighing/scaling of ingredients, recipe production and cost management. Emphasis placed on techniques, coordination, teamwork and production of baked products to be served in our student-operated enterprises. A high level of student interaction and participation expected. Guest presenters and field trips may address additional topics.

FSM 205 - Hospitality Computer Applications

Credits: 3.00

Introduction to personal computers and business application software. Utilizing the most recent Windows environment, students will learn the fundamental principles and techniques associated with processing (Word), spreadsheets (Excel), and database management (Access). Each of these applications will be presented in relationship to business management responsibilities within the hospitality industry. Concepts/applications such as business letters, proposals, contracts, accounting spreadsheets, and customer and employee databases will all be explored. 3 contact hours/lec/lab.

FSM 206 - Food and Beverage Cost Control

Credits: 4.00

Course places emphasis on methods used to solve mathematical problems that relate to food service operations as they apply to controls. Topics covered include operations with demicals, percents, weights and measures, recipe conversion, menu pricing, purchasing food costs, inventories, break-even analysis, and financial statements.

FSM 207 - Hospitality Sanitation and Safety

Credits: 2.00

Focuses on food safety and sanitation for food service operators in both public and private sectors. Topics include development, control and implementation of industry standards and procedures, pest control, crisis management, and a proactive approach to providing safe food is explored. Students have the opportunity to gain food safety certification after successful completion on the National Restaurant Association's certification exam. CPR certification is included. Guest speakers and field trips may be used to address specific topics. Supplementary materials are utilized as needed.

FSM #208 - Non-Commercial and Contract Food Service Management

Credits: 3.00

Course focus is on the contract and non-commercial aspect of the food service business. Emphasis is on comparing and contrasting food services offered in healthcare, business and industry, education, recreation and leisure, in-flight and vending operations.

FSM 209 - Applied Restaurant Operations Management

Credits: 4.00

Students learn hands-on while managing the Balcony Bistro, an upscale, gourmet restaurant open to the public. Emphasis is on plate presentation, kitchen management, front-of-the-house operations, menu pricing, and food and labor cost controls for an on-going restaurant operation. Prereq: FSM 201, 202, and 207. FSM majors only. 1 lec/6-hr lab.

FSM 210 - Introduction to the Dietetic Technican Profession

Credits: 1.00

This course provides an introduction to the deitetics profession with an emphasis on dietetic technican practice. Topics include educational requirements, credentialing, nutrition resources and professional development. Students participate in a health and wellness project.

FSM 211 - Food and Beverage Facilities Planning

Credits: 2.00

Course covers preplanning and layout of facilities and equipment for various food services operations. Care and maintenance of the physical plant, as well as selection, operation, and placement of essential equipment will be emphasized. Design and development of the operation in relation to the physical plant as well as the product/service offering examined and analyzed. May be repeated. 1 2-hr lec.

FSM 212 - Hospitality Personnel Management

Credits: 3.00

Designed to teach the first-line hospitality supervisor how to create a positive work climate to assist identifying and keeping employees who cook, serve and tend bar. Students learn and develop skills, attitudes and abilities needed to lead and manage in an industry with numerous demands. Course focuses on employee recruitment, training and development, performance evaluation, disciplinary action, and wage and fringe benefit administration. Through case studies, students practice planning, organizing, communicating effectively, delegating and decision-making. 2 lec.

FSM 214 - Menu Planning and Design

Credits: 1.00

Course addresses all aspects of menu planning and design and introduces students to the importance of the menu as the central theme in all aspects of food service. Topics include identification of menu styles, as well as writing menus, cost containment, pricing and menu analysis. Students gain an understanding as to how the menu influences production and service as well as its impact on the overall financial plan of the food service establishment. Prereq: FSM 201, FSM 242. FSM Majors only. 1 hr. lecture.

Co-requisites:**FSM #215 - Restaurant And Hospitality Law****Credits:** 2.00

Study of the legal environment as it applies to all segments and aspects of food services operations. Topics include common and statutory law with regard to contracts, employment, negligence, public accommodation and disclaimer liability as well as the operator's duty to protect guests and "reasonability." Significant examination of actual case law will be employed. May be repeated. 1 2-hr lec.

FSM 218 - Beverage Operations Management**Credits:** 2.00

Provides a well-rounded examination of the foundation of knowledge and techniques regarding the history, production, and control of wines, spirits, and other beverages within a food services operation. Additionally, a variety of other topics such as purchasing, staffing, cost control, and safe alcoholic beverage service covered. May be repeated. 2 2-hr lec.

FSM 219 - Hospitality Purchasing**Credits:** 1.00

Covers responsibilities of food service operators in their roles as purchasing agents. A proactive approach to purchasing safe food is stressed. Development, control and implementation of standards and procedures, pest control, crisis management plan is explored. Students may elect to take the National Restaurant Association exam and will receive certification with successful completion. Guest speakers and field trips may be used to address specific topics. Supplementary materials are utilized as needed.

FSM 222 - Local Food for Local Tables Enriching and Sustaining New Hampshire's Restaurants, Tourism, and Sma**Credits:** 4.00

Focuses on how to connect local food production with the New Hampshire restaurant and tourism industry using community partnerships to benefit small farms and local economies. Explores current practices, evolving trends, and emerging food movements in a variety of national and international farm-to-table models, and examines how these may apply to New Hampshire. Guest speakers provide additional depth, with field trips used to illustrate specific topics.

FSM 226 - Dining Room Practicum**Credits:** 3.00

A front-of-the house supervised training experience with an emphasis on customer service and table service techniques in one of the TSAS restaurants. Students participate in T.I.P.S. Training for responsible beverage service. Students are also expected to pass the T.I.P.S. examination for certification. Students also complete training for the MICROS point of sale system.

FSM 228 - Culinary Nutrition**Credits:** 2.00

The study of dietary needs from a culinary perspective. The focus is on basic nutrition and health with a emphasis on healthy menu and recipe development. Students research, evaluate, plan and prepare healthy menus and recipes using healthy cooking techniques. Course will culminate in students completing a healthy cooking demonstration. Pre- or Coreq: FSM 201, FSM 207. 1hr lec/2 hr lab.

Co-requisites:

FSM 235 - International Cuisine

Credits: 5.00

International Cuisine allows students to explore different cultures and cuisines of the world. Students study a different country or region each week and learn how history, geography, and main ingredients influence the different cuisines. Students prepare multi-course international menus one evening a week in the dining room at Cole Hall. Prereq: FSM 201, 204, 214, 242, 243. Majors only. Pre-or Coreq: FSM 244, 245. 2 hr lec/6 hr lab.

FSM 240 - Restaurant Sales and Promotion Management

Credits: 4.00

An overview of fundamental marketing principles as they relate to the food services industry. Evaluation methods for planning, testing, budgeting, and analyzing in-house promotional programs explored in detail. Emphasis will be placed upon techniques and media utilized in the promotion of food and beverage operations. Basics of the marketing mix such as product, price, promotion, and distribution applied to management of a foodservice operation. May be repeated. 2 2-hr lec.

FSM 241 - Applied Buffet and Catering Management

Credits: 4.00

Students learn hands-on while managing a weekly international buffet series and catering special events at the Thompson School. Emphasis is on food arrangement and presentation, garde-manager display work, buffet set-up, garnishments, banquet presentations, and on/off premises catering. Prereq: FSM 201, 202, and 207. FSM majors only. 1 lec/6-hr lab.

FSM 242 - Culinary Skill Development

Credits: 4.00

This course serves as the foundation course for students in the Culinary Arts concentration. Students practice and become efficient in all areas of food preparation required in the commercial kitchen. Topics include but are not limited to sanitation and safety, knife skills, butchering, stocks, sauces, soups, vegetables, breakfast cookery and entree preparation. Majors only. Special fee. 1 hr lec/6 hr lab.

Co-requisites: FSM 201

FSM 243 - Quantity Food Production and Display Cooking

Credits: 4.00

Students prepare a variety of a la carte menu items directly in front of customers using various cooking techniques such as saute, grill, stir fry, char-broil, and fry. Students also rotate through the bakeshop producing baked goods for the quantity kitchen. Proper food presentation, granishment, safety, and sanitation are practiced. Majors only. 1 hr lec/6 hr lab.

Co-requisites:

FSM 244 - Catering Operations; Buffets/Banquets

Credits: 4.00

Students apply skills and techniques learned in prior courses and enhance skills in advanced aspects of culinary preparation and management such as garde manager, buffet presentation, event booking, scheduling, and buffet staging. Advanced techniques of garde manager include production of canapes, savory pastries, charcuterie, farces, and sculptured centerpieces. Prereq: FSM 201, FSM 207, FSM 214, FSM 242, FSM 243. FSM Major Only. 2 hours lecture, 9 hours lab.

FSM 245 - American and Regional Cuisine

Credits: 4.00

Students apply and enhance skills in advanced aspects of a la carte cooking. Course introduces students

to foods available in the United States and prepare meals for service in Stacey's restaurant. Students are also introduced to the art of pairing foods with fine wines for special events. Prereq: FSM 201, 207, 214, 242, 243. Majors only. 1 hour lecture/6 hour lab.

FSM 260 - Dietetics Practice in the Comm

Credits: 3.00

A supervised practice in programs and organizations that offer nutrition services to the community with a focus on federally/state funded programs with nutrition components, food insecurity, and health and wellness promotion. Students work with a variety of target groups throughout the life cycle. Prereq: FSM 201/207, NUTR 400/476. 90 hrs.

Co-requisites:

FSM 265 - Community Nutrition for Dietetic Technicians

Credits: 2.00

A study of community programs and agencies providing food and nutrition services to age groups throughout the life cycle. Emphasis is on assessment of nutritional needs in the community. Prereq: FSM 229; NUTR 510. Coreq: FSM 260. 2 lec.

Co-requisites:

FSM 275 - Diet Therapy and Counseling

Credits: 4.00

This is the study of clinical nutrition-diet therapy and counseling strategies to manage various diseases. The class integrates case studies to allow the student practice in planning, calculating, and counseling of commonly modified diets for individuals with health problems. Prereq: FSM 200, NUTR 400/476, ZOO 401. lecture/2 hour lab.

FSM 276 - Diet Prac Long Term Care

Credits: 1.00

A supervised practice that introduces the student to nutrition services in long term care facilities. Students participate in the nutrition care process and plan and execute a special function meal. Prereq: FSM 207, NUTR 476, FSM 275. 35 hr.

FSM #278 - Applied Principles of Food Preparation

Credits: 1.00

Principles and techniques of food selection, preparation, and presentation in relation to quality and acceptability. Dietetic Technician students only. 2 lab.

FSM 290 - Dietetics Practice in Acute Care

Credits: 5.00

This supervised practice introduces the student to the clinical nutrition services of medical facilities. Students participate in diet office operations, the nutrition care process, and gain management experience as it relates to clinical services. Prereq: FSM 275, NUTR 400, NUTR 476. 250 hr.

Co-requisites: FSM 275

FSM 291 - Independent Studies in Restaurant Management

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Independent studies may include experiences in culinary, dining room, or marketing.

FSM 292 - Independent Studies in Restaurant Management

Credits: 1.00 to 4.00

See description for FSM 291.

FSM 293 - Studies in Dietetic Technology

Credits: 3.00 to 6.00

A Dietetic Technician Practicum. Students gain hands-on experience in one of the following: A) Food Service Management; B) Clinical Nutrition; C) Community Nutrition. Prereq: permission of instructor and students advisor.

FSM 294 - Studies in Dietetic Technology

Credits: 3.00 to 6.00

See description for FSM 293.

FSM 295 - Prof Issues for Diet Techs

Credits: 1.00

Review of the professional credentialing process, skills and practice for the registration exam for dietetic technicians, completion of a professional portfolio for continuing education in the field of dietetics. 1hr.

FSM 296 - Dietetic Technician Independent Study - Dietetic Technician Practicum

Credits: 3.00 to 6.00

For Dietetic Technician students who need to take practica at alternate times. There are two practica in the Dietetic Technician major: FSM 290 Clinical Nutrition Practicum 7 cr.; and FSM 260 Community Nutrition Practicum 5 cr. May be repeated for a maximum of 13 credits. Prereq: permission.

FSM 297 - Restaurant Management Summer Internship

Credits: 3.00

Career-related internship intended to provide additional practical experience for the senior year. Minimum 12 weeks up to 16 weeks, 500-600 hours. Required for graduation and generally completed during the summer following freshman year.

FSM 298 - Work Experience

Credits:

This course enables students to enhance basic cooking skills and techniques learned in the first year. Students obtain industry related employment over the summer generally between the first and second year of academic course work. Documentation of the work experience is required as well as a final written paper. Prereq: FSM 201, 204, 207, 214, 243. Majors only. Cr/F.

Forest Technology

FORT 260 - Forest Mapping

Credits: 2.00

Skill and efficiency is developed in analyzing field survey data, plotting, lettering and finishing topographic and planimetric maps and road plans, both manually and by Computer Assisted Drafting. Mapping work is closely coordinated with field work accomplished in Forest Surveying (FORT 266.) 1 lec/1 3-hr lab.

FORT 261 - Dendrology

Credits: 3.00

Identification and nomenclature of forest trees and shrubs which are important to the ecology and economy of the Northeastern forest. The identification of plant relationships with other plants, animals, soil, and site regimes. 1 lec/1 2-hr lab.

FORT 263 - Forest Ecology

Credits: 2.00

The interactions of forest trees with their environment, both as individuals and as tree communities; environmental problems affecting plant communities; the history and classification of North American forests. Study of soils as they affect forest distribution and tree growth. 2 lec.

FORT 263A - Forest Ecology Lab

Credits: 1.00

A series of field-based exercises used to reinforce the principles of forest ecology introduced in FORT 263. Includes forest individuals and communities, classification of forest and soils as they affect tree growth. 2 hour lab. Pre- or Coreq: FSM 263.

FORT 264 - Arboriculture

Credits: 3.00

Tree selection, care, and maintenance in the urban environment. Includes climbing, safety practices, pruning, transplanting, and removals. Prereq: FORT 263 or permission. 1 lec/1 4-hr lab.

FORT 265 - Forest Orientation Seminar

Credits: 1.00

Seminar to prepare freshmen for study and placement in the broad area of forest technology. 1 lec. Cr/F.

FORT 266 - Forest Surveying

Credits: 4.00

Provides instruction and experience in running cruise lines and in the survey and identification of rural property lines. The focus is on field surveying techniques and problem solving of special importance to foresters. Use of magnetic survey data in rural property measurement. Elementary office computations are taught. 2 lec/1 4-hr lab.

FORT 267 - Leadership, Supervision, and Safety Practices

Credits: 2.00

Fundamentals of leadership and supervision including effective communication, job organization, planning, personnel training and motivation, problem-solving and decision-making techniques, accident prevention, first aid, and CPR instruction. 2 lec.

FORT 269 - Wildlife Ecology and Conservation

Credits: 3.00

Foresters directly influence wildlife by manipulating habitat through silvicultural operations. Course focuses on the ecology of New England wildlife species with emphasis on their habitat requirements and the enhancement of habitat through silviculture and the use of best management practices. 1 lec/1 4-hr lab.

FORT 270 - Applied Silviculture

Credits: 4.00

Silvicultural practices in the U.S. including reforestation systems. Improvement of forest stands, employing the basic tending practices of weeding, thinning, and pruning. Marking of stands prior to logging operations. Prereq: permission of instructor or FORT 261 and 263. 2 lec/1 4-hr lab.

FORT 272 - Mensuration

Credits: 4.00

Field application of forest inventory and timber cruising techniques. Measurement of tree form, volume, quality, and defect. Growth prediction of individual trees and stands. Use of basic statistical methods as a tool in cruising. Prereq: FORT 261 or instructor permission. 2 lec/1 4-hr lab.

FORT 273 - Management Operations and Analysis

Credits: 3.00

Forest appraisal and valuation methods, timber sale contracts, depreciation and depletion calculations, forest taxation. Essentials of forest regulation and management planning. 2 lec/1 2-hr lab.

FORT 274 - Industrial Forest Management Tour

Credits: 1.00

Concentrated field experience and intensive observations of industrial, private, and federal forest holdings; emphasizing forest management operations as currently practiced in New England. One week of concentrated field study. Cr/F.

FORT 275 - Forestry Field Practices

Credits: 1.00

A week long introduction to the various components of the forest industry of the northeast. Students visit with members of the forest industry in the work-place and learn how they are interrelated. Students gain background experience that will prove beneficial in understanding their studies during their second year in the Forest Technology curriculum. One week of concentrated field study.

FORT 276 - Forest Products

Credits: 4.00

Basics of structure and properties of wood as a raw material. Conversion of logs to lumber at Thompson School sawmill (student operated). Lumber and log grading and measuring. Studies in processing efficiency, lumber drying, and physical plant operations. Introduction to paper, veneer, and chip products. Marketing of forest products. 2 lec/1 4-hr lab.

FORT 277 - Logging

Credits: 4.00

A study in harvesting methods and their relation of forest management and silviculture of the state and region. Theory and practice of conventional harvesting systems including hands-on application of techniques with a strong emphasis on protection of the environment and the safety and health of workers. Department permission for non-majors. 2 lec/4-hr lab.

FORT 278 - Forest Insects and Diseases

Credits: 2.00

An introduction to the role of forest insects and microorganisms in the context of managing woodlands. Students learn to recognize the signs and symptoms of insect and disease damage in forest trees and

products. They study the life cycles and identify common forest insect and disease pests impacting North American tree species. Pest management methods are introduced. 1 lec/3-hr lab.

FORT 279 - Forest Fire Control and Use

Credits: 2.00

Instruction in forest fire suppression methods. Interactions of forest fuels, topography, and weather as they affect forest fire behavior. Use of controlled fire as a tool in forest and wildlife management. 1 lec/1 2-hr lab.

FORT 280 - Aerial Photography Interpretation

Credits: 2.00

The use of aerial photographic interpretation as it applies to the identification and measurement of forest resources and applications in forest mapping. 1 lec/1 2-hr lab.

FORT 281 - GIS For Foresters

Credits: 2.00

Students learn the use of geographic information systems software for a variety of natural resource uses. GIS mapping skills are used in subsequent courses. 1lec/2-hr lab

FORT 283 - Forestry Computer Applications

Credits: 1.00

Introduction to file management, word processing, spreadsheets, databases, powerpoint, email, and the internet. Students use software to solve forestry-related problems. 1 lec/1 lab.

FORT 291 - Independent Studies in Forest Technology/Urban Tree Care

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Examples include forest management, forest products, forest protection, wildlife management, or urban tree care. Permission required. Course may be repeated up to a maximum of 8 credits.

FORT 292 - Independent Studies in Forest Technology/Urban Tree Care

Credits: 1.00 to 4.00

See description for FORT 291.

FORT 297 - Work Experience

Credits:

Career-related employment (10 weeks, generally in the summer following freshman year) in a forestry, urban tree care, or other department-approved natural resources area. Cr/F.

French

FREN 401 - Elementary French I

Credits: 4.00

Conducted in French, the course introduces students to French language and culture through speaking, listening, reading, writing, labs and films. Designed for students without previous training in French. Credit only for students who have had less than two years of French in secondary school. 401-402 taken together satisfies the foreign language requirement. Special fee.

FREN 402 - Elementary French II

Credits: 4.00

See description for FREN 401. FREN 401 is a prerequisite for this course. Cannot be taken separately except with permission of instructor.

FREN 403 - Review of French

Credits: 4.00

Conducted in French. Course emphasizes the active use of French through speaking, listening, reading, writing, labs, and films while providing a review of basic grammar. Designed for those students whose study of French has been interrupted for a significant amount of time or who have had two or more years of high school French. Special fee. FREN 403 does not satisfy the foreign language requirement.

FREN #426 - Introduction to Francophone Studies

Credits: 4.00

Taught in English. Explores the history, literature, and cultures of francophone countries in Europe, Africa, North America, or the Caribbean. Lecture, discussion, guest speakers, and multimedia. Satisfies the general education requirement for foreign culture and counts toward the French Studies minor. Francophone regions will vary from year to year. Special fee. Writing intensive.

FREN 500 - Selected Topics in World Literature

Credits: 4.00

Topics will be chosen that introduce students to major themes and genres. (Also offered as CLAS 500, GERM 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Credit/Fail. Writing intensive.

FREN 503 - Intermediate French I

Credits: 4.00

Conducted in French. Review of grammar with emphasis on the development of reading, writing, speaking, and listening skills, and on culture. Discussion in French of literary and cultural readings. Labs and films. Special fee. Writing intensive.

FREN 503H - Honors/Intermediate French I

Credits: 4.00

See description for FREN 503. Writing intensive.

FREN 504 - Intermediate French II

Credits: 4.00

See description for FREN 503. Writing intensive.

FREN 504H - Honors/Intermediate French II

Credits: 4.00

See description for FREN 504. Writing intensive.

FREN #522 - French Drama in Translation

Credits: 4.00

Taught in English, major works of comedy, tragedy, and drama. Moliere and Racine to the present day. Not for major credit. Special fee. (Not offered every year.)

FREN 525 - Introduction to French Civilization and Culture

Credits: 4.00

Taught in English. French civilization from a variety of perspectives and topics. Includes historical, geographical, and artistic expressions of French culture. Not for major credit. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.

FREN 526 - Introduction to Francophone Cultures

Credits: 4.00

Taught in English. Focus on French-speaking cultures other than France. Includes historical, geographical, and artistic expressions of these cultures. Not for major credit. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.

FREN 582 - Study Abroad in Paris

Credits: 1.00 to 16.00

Study with the University of Delaware program in Paris, France. For students who have completed 503 with a grade of B- or better. Students take one language course (equivalent to FREN 503 or 504) and courses taught in English (topics include Art History, History, Literature, and Political Science). Special fee. Prereq: FREN 501 or FREN 503. Cr/F.

FREN 585 - Intermediate Language Study in France

Credits: 4.00

Equivalent to FREN 503, requires four weeks of intensive study of French language and culture at the Centre International d'Etudes des Langues (CIEL) in Brest, France. Prereq: FREN 403 or French 4 in a U.S. high school, with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses, and tuition costs in France. (Offered summers only.)

FREN 586 - Intermediate Language Study in France

Credits: 4.00

Equivalent to FREN 504, requires four weeks of intensive study of French language and culture at the Centre International d'Etudes des Langues (CIEL) in Brest, France. Prereq: FREN 503 or 585 with a GPA 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses and tuition costs in France. (Offered summers only.)

FREN 595 - French Practicum

Credits: 2.00

Practical use of French language or cultural skills outside the classroom through special projects. May be repeated up to 4 credits. Prereq: Permission. Cr/F.

FREN 631 - Advanced French Conversation and Composition I

Credits: 4.00

Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from various media. Students develop phonetics and oral/aural skills in lab and class. Prereq: C or better in FREN 504. Required for majors. Special fee. Writing intensive.

FREN 632 - Advanced French Conversation and Composition II

Credits: 4.00

See description for FREN 631. Writing intensive.

FREN 635 - Introduction to Business French - Brest

Credits: 4.00

This course requires four weeks of intensive study of French language at the Centre International D'Etudes des Langues (CIEL) in Brest, France. Prereq: FREN 632 or equivalent with a GPA of 2.5 or better and permission. Special UNH fees. Student responsible for personal and travel expenses. At the end of this course, students may take the level one Paris Chamber of Commerce test in business French for an additional fee. (Offered summers only.)

FREN 651 - Readings in French Literature

Credits: 4.00

Reading and rigorous oral and written analysis of texts selected to illustrate important themes/genres in French literature. May be taken before or after FREN 652. Pre- or Co-Req: FREN 631-632. Required for majors. Special fee. Writing intensive.

FREN 651H - Honors/Readings in French Literature

Credits: 4.00

See description for FREN 651. Writing intensive.

FREN 652 - Readings in French Literature

Credits: 4.00

See description for FREN 651. May be taken before or after FREN 651. Writing intensive.

FREN 652H - Honors/Readings in French Literature

Credits: 4.00

See description for FREN 652. Writing intensive.

FREN 675 - Topics in French Civilization

Credits: 4.00

Topics drawn from all aspects and periods of French civilization. Prereq: FREN 631, 632, and 651 or 652. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.

FREN 676 - Topics in Francophone Culture

Credits: 4.00

Topics drawn from all aspects and periods of French civilization. Prereq: FREN 631, 632 and 651 or 652. May be repeated for credit barring duplication of materials. Special fee. (Not offered every year.) Writing intensive.

FREN 677 - France in the European Union

Credits: 4.00

Topics drawn from all aspects of contemporary French culture in its relationship with the fifteen member states of the European Union, with emphasis on the role of France in the building of the European Union. Special fee. Prereq: FREN 631-632. Coreq: FREN 651 or 652. (Not offered every year.) Writing intensive.

FREN 682 - Study Abroad in Paris

Credits: 1.00 to 16.00

Study with the University of Delaware program in Paris, France. For students who have completed FREN 504 or 631 with a grade of B- or better. Students take one language course (equivalent to FREN 631 or

632) and courses taught in English (topics include Art History, History, Literature, and Political Science). Special fee. Prereq: FREN 504 or FREN 631. Cr/F.

FREN 683 - Advanced Language Study in France

Credits: 4.00

Equivalent to FREN 631, this course requires four weeks of intensive study of French language at the Centre International d'Etudes des Langues (CIEL) in Brest France. Prereq FREN 504 with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses and tuition costs in France. Offered summers only.

FREN 684 - Advanced Language Study in France

Credits: 4.00

Equivalent to FREN 632, this course requires four weeks of intensive study of French language at the Centre International d'Etudes des Langues(CIEL) in Brest, France. Prereq: FREN 504 or FREN 683, with a GPA of 2.5 or better and permission. Special UNH fee. Student responsible for personal and travel expenses and tuition costs in France. (Offered summers only.)

FREN 690 - Study Abroad in Dijon France

Credits: 16.00

Spring semester at the University of Burgundy (Dijon, France) for juniors. This one-semester program is open to majors who have completed with a B- or better FREN 631-632 and FREN 651 or 652, or equivalent. Non-majors need to speak with the program director to determine their eligibility. Non-credit orientation meetings are required during the fall semester prior to departure. The normal UNH requirements for studying abroad apply to this program. For further information, interested students should consult with the director in the French program. Special fee. Prereq: FREN 504 with a C or better and permission. Non-majors FREN 631, 632; FREN 651 or 652 for majors. Special fee. May be repeated. Cr/F.

FREN 695 - Special Advanced Language Study in France

Credits: 4.00

Four weeks of intensive language study at the Centre International d'Etudes des Langues (CIEL) in Brest, France. Prereq: FREN 631 and 632 with grade of B- or better and permission. Special UNH fee and DCE administrative fee. Student responsible for personal and travel expenses as well as tuition and other costs at CIEL. (Offered summer only.) Special fee.

FREN 762 - 17th Century French Literature

Credits: 4.00

Prereq: FREN 651 and 652 or equivalent. Special fee. (Offered fall semester in alternate years.) Writing intensive.

FREN #765 - 18th Century French Literature

Credits: 4.00

Prereq: FREN 651 and 652 or equivalent. Special fee. (Offered spring semester in alternate years.) Writing intensive.

FREN 775 - 19th Century French Literature

Credits: 4.00

Prereq: FREN 651 and 652 or equivalent. Special fee. (Offered fall semester in alternate years.) Writing intensive.

FREN 782 - 20th Century French Literature

Credits: 4.00

Prereq: FREN 651 and 652 or equivalent. Special fee. (Offered spring semester in alternate years.) Writing

intensive.

FREN 785 - Topics in Francophone Literatures

Credits: 4.00

Readings in French literatures from outside of France (e.g., Quebec, Africa, the Caribbean). Taught in French. Prereq: FREN 651 and 652. Special fee. (Not offered every year.) Writing intensive.

FREN 790 - Advanced Language and Style

Credits: 4.00

Translation of contemporary texts, intensive study of major writing techniques (such as narration, explication de texte, compte rendu, dissertation). Required for major. Prereq: at least two literature courses in French numbered above 652. Special fee. (Fall semester only.) Writing intensive.

FREN 795 - Special Studies in French Language and Literature

Credits: 1.00 to 4.00

Individual guided study of the work of a major author, a genre, or specific topics in literature. Training in bibliography and organization of material. Prereq: permission. (Not offered every year.)

FREN 796 - Special Studies in French Language and Literature

Credits: 1.00 to 4.00

See description for FREN 795.

FREN 798 - Seminar in French Literature

Credits: 4.00

Topics chosen by the instructor. May be repeated for credit barring duplication of material. Prereq: FREN 651, 652; permission. (Not offered every year.)

FREN 799 - Honors Senior Thesis

Credits: 2.00

Yearlong course leading to an honors senior thesis. Open only to seniors seeking honors in major whose individually designed research projects have been approved by the department honors committee and who have been assigned an adviser. Students must enroll for both fall and spring semesters. Students defend the resulting written thesis in an oral presentation before department members and others. Prereq: permission.

Genetics

GEN 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Prereq: permission. Cr/F.

GEN 704 - Genetics of Prokaryotic Microbes

Credits: 5.00

Expression and transfer of genetic elements (chromosomal and non-chromosomal) in prokaryotic and eukaryotic microorganisms; consideration of factors influencing public health, industry, the environment, and society. Students earning credit for PBIO 754/854; BCHM 854/854; GEN 754/854 may not receive credit for MICR 704/804. Prereq: general microbiology; biochemistry (Also offered as MICR 704.) Lab. Special fee.

GEN 705 - Population Genetics

Credits: 4.00

An exploration of the forces affecting the frequency and distribution of allelic variation in natural populations. The relative role of mutation, selection, random drift and inbreeding and structuring genetic variation. Quantification of the genetic structure of populations. Prereq: BIOL 604; BIOL 528 recommended. Lab. (Not offered every year.)

GEN 706 - Human Genetics

Credits: 3.00

The genetic basis of human traits and diseases. New understanding added by molecular genetic approaches. Human genome project, gene therapy. Discussion of genetic components of quantitative and behavioral traits in human evolution. (Not offered every year.) Prereq: GEN 604 or ANSC 612.

GEN 711 - Genomics and Bioinformatics

Credits: 4.00

The methods, applications, and implications of genomics--the analysis of whole genomes. Microbial, plant and animal genomics are addressed, as well as medical, ethical and legal implications. The lab provides exposure and experience on a range of bioinformatics approaches--the computer applications used in genome analysis. Prereq: BIOL 604. Lab. (Also listed as BCHM 711.)

GEN 712 - Introduction to Perl programming for Bioinformatics

Credits: 4.00

This first course in Perl programming is designed to enable undergraduate and graduate students in the life sciences to solve fundamental biological questions of simple to moderate complexity that require the use of computers to automate repetitive, exhaustive tasks and handle query results efficiently including: computing values of important parameters of biological sequence data, writing pattern search and motif discovery scripts, accessing, querying, manipulating, retrieving, parsing, analyzing and saving data from local and remote databases. Prereq: BIOL 604 or permission.

GEN 713 - Microbial Ecology and Evolution

Credits: 4.00

Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in natural communities, laboratory experiments, and simple mathematical models.

Special emphasis on the tempo and mode of prokaryotic adaptation, the evolution of virulence, and the origin of new pathogens. Prereq: MICR 503. (Also listed as MICR 713.) Special fee.

GEN 715 - Molecular Evolution

Credits: 4.00

Rates and patterns of evolutionary change in biomolecules. Forces affecting the size and structure of genomes. Molecular mechanisms of organismal evolution. Emphasizes integrating evidence from biochemistry, molecular genetics and organismal studies. Methods for reconstructing phylogeny from molecular sequences. Prereq: BIOL 604. Some knowledge of statistics is recommended. Special fee. Lab. (Not offered every year.)

GEN #723 - Quantitative Genetics

Credits: 4.00

Analysis of continuous variation in populations simultaneously segregating at multiple loci. Genetic and non-genetic factors and the complex interactions between them. Models and methods of analysis, for both theoretical and practical applications. Prereq: BIOL 604; BIOL 528 strongly suggested. Special fee. Lab. (Not offered every year.)

GEN 753 - Cytogenetics

Credits: 4.00

Chromosome structure, function, and evolution. Eukaryotic genome organization. Theory of, and laboratory techniques for, cytogenetic analysis in plants and animals. Prereq: BIOL 604. Special fee. Lab. (Also offered as PBIO 753. Not offered every year.)

GEN 754 - Laboratory in Biochemistry and Molecular Biology of Nucleic Acids

Credits: 5.00

Application of modern techniques to the analysis of biomolecules, with an emphasis on nucleic acids; includes DNA isolation and analysis, cloning, sequencing, and analysis of gene products. Prereq: BCHM 658/659; 751, or permission. (Also offered as BCHM 754 and PBIO 754.) Special fee. Writing intensive.

GEN 771 - Molecular Genetics

Credits: 4.00

Structure, organization, replication, dynamics, and expression of genetic information in eukaryotes. Focus on molecular genetic mechanisms of gene expression and its control; molecular genetics methods; molecular genetic control of cell division and differentiation during development. Prereq: BCHM 658 or 751; BIOL 604;/ or permission. (Also offered as BCHM 771.)

GEN 772 - Evolutionary Genetics of Plants

Credits: 4.00

Mechanisms of genetic change in plant evolution, domestication, breeding, and genetic engineering. Topics include Darwinian theory; speciation and hybridization; origins and co-evolution of nuclear and organelle genomes; gene and genome evolution; transposable elements, chromosome rearrangements, polyploidy. Lab: DNA techniques, sequence analysis programs, phylogenetic trees. Special fee. Prereq: BIOL 604 or equivalent; PBIO 412 or BIOL 411/412 or equivalent. (Also offered as PBIO 772.) (Not offered every year.)

GEN 774 - Plant Biotechnology and Genetic Engineering

Credits: 3.00

Plant transformation and regeneration, gene isolation and identification, structure and regulation of plant genes, current applications of plant genetic engineering, environmental and social implications. Prereq: BIOL 604 or permission. (Also offered as PBIO 774.) (Not offered every year.)

GEN 775 - Plant Biotechnology and Genetic Engineering Lab

Credits: 2.00

Techniques for genetic transformation and selection of plants, analysis of foreign gene expression, and plant cell and tissue culture. Coreq: PBIO or GEN 774. (Also offered as PBIO 775.) Special fee. (Not offered every year.)

Co-requisites: GEN 774

GEN 795 - Investigations

Credits: 1.00 to 4.00

Independent study/research in various areas of genetics. A) Transmission Genetics, B) Molecular Genetics, C) Population and Quantitative Genetics. Prereq: permission. May be repeated to a maximum of 4 credits.

GEN 795W - Investigations

Credits: 1.00 to 4.00

See description for GEN 795. Writing intensive.

GEN 799 - Honors Senior Thesis

Credits: 1.00 to 4.00

Geography

GEOG 401 - Regional Geography of the Western World

Credits: 4.00

An introduction to the people, places, and problems of six Westernized regions of the world -- Europe, Russia, Latin America, the Caribbean, North America, and Australia and Oceania. The course emphasizes five themes: environmental geography, population and settlement, cultural coherence and diversity, geopolitical framework, and economic and social development.

GEOG 401H - Honors/Regional Geography of the Western World

Credits: 4.00

See description for GEOG 401.

GEOG 402 - Regional Geography of the Non-Western World

Credits: 4.00

Major culture areas of the non-Western world and the unique interaction of human and physical phenomena that produces the distinctive character of these areas. Emphasizes the manner in which people of different cultures have made use of opportunities and solved problems existing in the major regions occupied by non-Western cultures: the Middle East and North Africa, Africa south of the Sahara, Oriental Asia and the Pacific Islands.

GEOG 402H - Honors/Regional Geography of the Non-Western World

Credits: 4.00

See description for GEOG 402.

GEOG 473 - Elements of Weather

Credits: 4.00

Basic principles of weather phenomena and the physical processes underlying these phenomena. Emphasis on weather patterns of New England. Lab.

GEOG 510 - Geography of New England

Credits: 4.00

An introduction to the physical and human geography of New England, including landforms, climate and vegetation, population and settlement, urban patterns, culture and identity, political geography, natural resources, and economic development.

GEOG 514 - Geography of the United States and Canada

Credits: 4.00

An introduction to the physical and human geography of the United States and Canada, including landforms, climate and biogeography, environmental issues, population and settlement, culture and identity, political geography, urban patterns, natural resources and economic development. Course content alternates between topics that are large in scope and scale, and others that are more narrowly focused.

GEOG 540 - Geography of the Middle East

Credits: 4.00

Environmental, cultural, political-geographic, and ecological foundations of the Middle East. Selected regional problems and issues, e.g., geographical dimensions of the Arab-Israeli conflict, oil, urbanization, population growth, and nomadism. (Not offered every year.)

GEOG 541 - Geography of Japan

Credits: 4.00

Examination of Japan's environmental setting, historical geographic evolution, distinctive cultural geographic patterns, population and settlement characteristics, internal spatial differentiation, economic growth, political geographic structure, and global importance. (Not offered every year.) Writing intensive.

GEOG 550 - Geography of Sub-Saharan Africa**Credits: 4.00**

Overview of major physical features and human patterns, with an emphasis on the interaction between people and place and the dynamic issues and challenges facing contemporary African societies. Environmental and resource issues, historical impacts on development, culture and social characteristics, rural and urban organization, industrialization and trade, and prospects for the future.

GEOG 560 - Geography of Natural Hazards and Disasters**Credits: 4.00**

A survey of naturally occurring processes that have an adverse affect on human life, property, and activities. The environmental setting, mechanics, and geographic distribution of natural processes that result in human disasters are explored. Topics include the human response to earthquakes, volcanoes, landslides, severe weather, and floods. The geographic distribution of vulnerability to hazardous natural processes is also examined. The human perception of risk is a common theme.

GEOG 570 - Climatology**Credits: 4.00**

General survey of climate classification and the geographical distribution of climate types, interpretation and applications of climate data, climate change over geologic time, and issues of global warming. (Not offered every year.) Prereq: GEOG 473 or ESCI 405.

GEOG 572 - Physical Geography**Credits: 4.00**

Basic principles underlying the study of landforms. Emphasis is place on their spatial distribution and the processes that shape the landscape. Special fee. (Not offered every year.)

GEOG 573 - Biogeography**Credits: 4.00**

Explores the introductory concepts of plant geography and biogeography, two interconnected disciplines that document and explain the changing distributions of plants and animals from both a spatial and temporal context. Gives equal emphasis to ecology (biomes, climates, soils), evolution (migration, speciation, dispersal), and applied biogeography and plant geography.

GEOG 574 - Geography of Landforms**Credits: 4.00**

Explores the geography of earth's major landforms and the geographic factors that influence their development, distribution, and morphology. Topics include mountain building, river systems, desert migration and expansion, glacial and periglacial environments, shoreline evolution, and how these processes interact to form surface features that are unique to their geographic environment. Students analyze geographic information in class and in the field using air photos, topographic maps, and spatial data.

GEOG 581 - Human Geography**Credits: 4.00**

Differentiation of the world in terms of population, race, language, religion, political territory, and economic life. Collection and critical use of empirical data; emphasis on spatial and ecological analysis.

GEOG 582 - Economic Geography

Credits: 4.00

Investigates the manner in which resources and space have been organized for the production of goods and services: agriculture, the extractive industries, manufacturing, and the tertiary sector. Empirical studies, theories of location, and location models. Major contemporary problems and issues in agriculture and food supply, energy sources, industrial readjustment, and the global economy. (Not offered every year.) Writing intensive.

GEOG 583 - Urban Geography

Credits: 4.00

Spatial structure of cities and the city system. Emphasizes the North American city and its problems: land use, transportation, political fragmentation, physical environment, and residential patterns. Trends in urbanization in the developed and developing worlds. Global cities. (Not offered every year.)

GEOG 584 - Political Geography

Credits: 4.00

Interactions between geographic and political phenomena at the sub-national, national, and international levels. Emphasis on geographical aspects of current political problems within and between states. (Not offered every year.) Writing intensive.

GEOG #587 - Place and Popular Culture

Credits: 4.00

Explores the role geography plays in popular culture--such as in literature, motion pictures, television, music, the news media, and advertising--and the ways in which popular culture shapes people's perceptions about places. Writing intensive.

GEOG 588 - Geography of Food

Credits: 4.00

Explores the geography of what people eat around the world. Examines the factors that shape food traditions in particular places and regions, including geographical differences in the environment, population patterns, cultural characteristics, political processes, economic conditions, and history. Considers how diets are changing today in response to globalization and other forces. Emphasis will be on common, everyday foods eaten by regular people. Organized regionally. Special fee.

GEOG 650 - Field Methods in Geography

Credits: 4.00

a survey of selected geographical field methods and the application of these methods - both qualitative and quantitative. It is designed around a series of field techniques, research and lab exercises, and the classroom setting which will introduce students to techniques widely used in gathering and analyzing spatial data in the geographical context. Special fee.

GEOG 658 - Introduction to Geographic Information Systems

Credits: 4.00

An introduction to the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data/quality standards. Hands-on using ArcView 3.x GIS software. Permission. (Also offered as NR 658.)

GEOG 671 - Advanced Weather Analysis

Credits: 4.00

Examines in depth, the physical processes that govern the development and movement of weather systems and the principles that drive the lowest layer of the atmosphere. Topics include the relationship

between surface and upper-level, tropospheric air flow, vertical motion, mesoscale storm development, and techniques used in weather analysis and forecasting. Prereq: GEOG 473.

GEOG 673 - Environmental Geography

Credits: 4.00

Survey of the interactions between humans and earth's physical environments. Attention focused on the geographical distribution of environmental problems. Topics include resource utilization, economic factors, population growth, food supplies, and air and water pollution. (Not offered every year.) Writing intensive.

GEOG 680 - Historical Geography

Credits: 4.00

An introduction to major themes, important scholars, and commonly used research techniques in historical geography. Course is reading and research oriented. Focus will be on North America. (Also listed as HIST 680.) Writing intensive.

GEOG 685 - Geography of Population and Development

Credits: 4.00

A regional approach to the study of population geography with concern for the interaction between the focus of economic growth and the components of population change and development. Considers the environmental impact of developing trends in the developed and developing worlds and the relationship of these trends to sustainable growth and population patterns. Writing intensive.

GEOG 695 - Internship

Credits: 1.00 to 4.00

Internships provide an opportunity for on-the-job skill development and practical experience in a closely supervised work setting. The student must provide a written proposal to a supervising faculty member before an internship program is approved. At the end of the semester, the student must make a presentation, provide work samples, or submit a detailed report, log, or portfolio describing the internship experience. May be repeated for up to 8 hours of credit.

GEOG 757 - Photo Interpretation and Photogrammetry

Credits: 4.00

Practical and conceptual presentation of techniques for using remote sensing, specifically aerial photographs, in natural resources. Includes photo measures of scale, area, parallax and object heights; flight planning; photo geometry; an introduction to the electromagnetic spectrum; and photo interpretation and mapping. Concludes with an introduction to digital remote sensing including multispectral scanners, radar, and thermal imagery and a brief discussion of geographic information systems (GIS). Applications to forestry, wildlife, land-use planning, earth sciences, soils, hydrology, and engineering. Prereq: algebra. Special fee. Lab. (Also listed as NR 757.)

GEOG 759 - Digital Image Processing for Natural Resources

Credits: 4.00

Introduction to digital remote sensing, including multispectral scanners (Landsat and SPOT), radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: GEOG 757 or equivalent and permission. (Also offered as NR 759).

GEOG 760 - Geographic Information Systems in Natural Resources

Credits: 4.00

Introduces the use of geographic information systems (GIS) for use with natural resources including data input, manipulation, storage, analysis, and display. Accuracy of spatial data and use of digital elevation

models. Discussion of practical applications. Use of PC Arc/Info software. Prereq: permission. Lab. (Also listed as NR 760.)

GEOG 795 - Special Project

Credits: 2.00 or 4.00

Readings, library, archival, and fieldwork. Primarily for geography seniors. Prereq: permission. Writing intensive.

GEOG 796 - Special Topics

Credits: 4.00

Special Topics in Geography: A) Climatology, B) Environmental Geography, C) Urban Geography, D) Political Geography, E) Population Geography, F) Economic Geography, G) Cultural Geography. Prereq: permission

GEOG 797 - Seminar

Credits: 2.00

Exploration of geography as a research discipline. Definition and investigation of research problems. Primarily for geography seniors. May be repeated up to a maximum of 4 credits.

German

GERM 401 - Elementary German I

Credits: 4.00

For students without previous training in German. Aural comprehension, speaking, writing, reading, language labs. No credit for those with two or more years of German in secondary school. Special fee.

GERM 402 - Elementary German II

Credits: 4.00

See description for GERM 401.

GERM 500 - Selected Topics in World Literature

Credits: 4.00

Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, ITAL 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Credit/Fail. Writing intensive.

GERM 503 - Intermediate German I

Credits: 4.00

Review of grammar; practice in oral and written expression; readings and cultural material. Prereq: GERM 401-402 or equivalent. Labs. Special fee.

GERM 504 - Intermediate German II

Credits: 4.00

See description for GERM 503.

GERM 521 - Major German Authors in English

Credits: 4.00

Selected masterpieces of the 18th, 19th, and 20th centuries by authors such as Goethe, Mann, Kafka, Hesse, Bachmann, Koeppen, Brecht, Frisch, Wolf, and Durrenmatt. Readings and discussions in English. May be taken for major credit. Special fee.

GERM 524 - Special Topics in German Film

Credits: 4.00

Using analytical and critical tools, students read film texts as aesthetic works (with a form and a narrative) and as historical works (with a social function). Culminates in an investigation of a distinct historical period of German film or of a particular theme through the history of German film. Special fee.

GERM 524H - Honors/Special Topics in German Film

Credits: 4.00

Using analytical and critical tools, students read film texts as aesthetic works (with a form and a narrative) and as historical works (with a social function). Culminates in an investigation of a distinct historical period of German film or of a particular theme through the history of German film. Special fee.

GERM 525 - Introduction to German Culture and Civilization

Credits: 4.00

Aspects of the political, social, and cultural life of Germany, Austria, and Switzerland. Conducted in English. Required of German majors; strongly recommended for any students planning study abroad in a German-speaking country. Special fee.

GERM 525H - Honors/Introduction to German Culture and Civilization

Credits: 4.00

Aspects of the political, social, and cultural life of Germany, Austria, and Switzerland. Conducted in English. Required of German majors; strongly recommended for any students planning study abroad in a German-speaking country. Special fee.

GERM 585 - Rosenheim Summer Program: A Review of German

Credits: 4.00

Provides an intensive, three-week review of the basic vocabulary and grammatical structures of the German language. While the reading, listening and writing skills will be practiced, this course emphasizes the speaking of the language in everyday, real-life situations. Conducted during the summer in Rosenheim, Germany. Special fee. Prereq: one year of college, elementary German or equivalent; permission.

GERM 586 - Study in Berlin

Credits: 4.00

Gives students a short immersion experience in the German language and culture in Berlin, Germany. During the 2-week study period in Berlin, students receive forty hours of intensive language instruction at the BSI Private Language School. In addition, the afternoons provide cultural excursions and discussions with the on-site UNH faculty member. A required pre- and post meeting at UNH prepares students for, and gives closure to, the Berlin experience. Permission required. Special fee.

GERM 595 - Internship

Credits: 2.00 to 4.00

The German Internship consists of unpaid placement in an approved business, social service or educational organization in a German-speaking context with on-site supervision. Student is responsible for keeping a journal to be evaluated by a UNH faculty mentor. Site supervisor evaluates intern's work on location in consultation with UNH mentor. Prereq: GERM 504. Variable credit 2 to 4 credits per unit. May count up to 4 credits toward German major or minor and an additional 4 as graduation elective. Does not replace Study Aboard requirement for major. Special fee.

GERM 601 - Introduction to German Literature

Credits: 4.00

Reading and analysis of poems, dramas, and short prose; introduction to theory of literary forms and methods of analysis. Required of all German majors; must be taken as soon as possible after GERM 504. Prereq: knowledge of German. Special fee.

GERM 631 - Advanced Communications Skills I

Credits: 4.00

Intensive practice in vocabulary building and developing a sense of appropriate style for various contexts of oral and written communication. Special emphasis on conversational and expository speaking. Discussion of topics of current interest, oral reports, role play, and simulation of everyday situations, reinforced by written work. Required for the German major and minor. Special fee. Prereq: GERM 504.

GERM 631H - Honors/Advanced Communications Skills I

Credits: 4.00

See description for GERM 631. Writing intensive.

GERM 631W - Advanced Communications Skills I

Credits: 4.00

See description for GERM 631. Writing intensive.

GERM 632 - Advanced Communications Skills II

Credits: 4.00

Intensive practice in vocabulary building and coherent expression in a variety of stylistic contexts. Special emphasis on writing skills, from expository prose to letter and resume writing, essays, journalistic reports, and creative writing, focusing on topics of current interest. Required for the German major. Special fee.

Prereq: GERM 504

GERM 685 - Study Abroad**Credits: 16.00**

A summer, semester, or year of study in one or a combination of the departmentally recognized programs such as the New England Universities Salzburg Program (UNH students as consortium members receive a discount on this program), the work-study program in Hamburg, or any other appropriate, approved programs. Open to students of any major with GERM 504 or equivalent training. Financial aid applies to all approved programs. Interested students should inquire at department for program brochures and specific requirements and should apply in consultation with a German adviser. For information on other study abroad programs, students should contact the Center for International Education. Cr/F. An IA (continuous grading) grade will be assigned until an official transcript is received from the foreign institution.

GERM 686 - Study Abroad**Credits: 16.00**

See description for GERM 685.

GERM 721 - German Culture and Civilization**Credits: 4.00**

Historical, social, artistic, and folkloristic developments in German-speaking countries from the beginning to the present. Prereq: GERM 525 or permission of instructor. Special fee.

GERM 721H - Honors/German Culture and Civilization**Credits: 4.00**

See description for GERM 721.

GERM #728 - Modern German Literature**Credits: 4.00**

Major literary movements from 1872 to 1945. Reading and analysis of selected works. Special fee. Writing intensive.

GERM #728H - Honors/Modern German Literature**Credits: 4.00**

See description for GERM 728. Writing intensive.

GERM 745 - Contemporary German Literature and Culture**Credits: 4.00**

Literary trends in the German-speaking countries since 1945. Analysis and interpretation of works by major authors. Special fee. Writing intensive.

GERM 795 - Independent Study**Credits: 1.00 to 4.00**

Open to highly qualified juniors and seniors. To be elected only with permission of the department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

GERM 795H - Honors/Independent Study**Credits: 1.00 to 4.00**

See description for GERM 795.

GERM 796 - Independent Study

Credits: 1.00 to 4.00

See description for GERM 795.

GERM 797 - Special Studies in German Language and Literature

Credits: 2.00 or 4.00

Selected topics in language, culture, and literature.

GERM 798 - Special Studies in German Language and Literature

Credits: 2.00 or 4.00

Selected topics in language, culture, and literature. Special fee.

Gerontology

GERO 795 - Independent Study

Credits: 4.00

Practical experience with elderly populations under supervision of designated faculty.

Greek

GREK 401 - Elementary Classical Greek I

Credits: 4.00

Grammar, simple composition, and translation. For students without previous training in Greek. Special fee.

GREK 402 - Elementary Classical Greek II

Credits: 4.00

See description for GREK 401.

GREK 403 - Elementary Modern Greek I

Credits: 4.00

Aural-oral practice and the study of fundamental speech patterns, reading, and writing to achieve a firm basis for an active command of the language. (No credit for students who have had two or more years of modern Greek in secondary school.) Special fee.

GREK 404 - Elementary Modern Greek II

Credits: 4.00

See description for GREK 403.

GREK 503 - Intermediate Classical Greek I

Credits: 4.00

Readings from Xenophon, Plato, Herodotus, Euripides, and the New Testament. Prereq: GREK 402. Special fee.

GREK 504 - Intermediate Classical Greek II

Credits: 4.00

See description for GREK 503.

GREK 505 - Intermediate Modern Greek I

Credits: 4.00

Short selections from modern Greek literature with grammar review and oral practice. Readings from such authors as Solomos, Cavafy, Palamas, Kazantzakis, Venezis, Myrivilis, Seferis, and Elytis. Prereq: GREK 404 or equivalent. Special fee.

GREK 506 - Intermediate Modern Greek II

Credits: 4.00

See description for GREK 505.

GREK 595 - Directed Reading in Greek

Credits: 2.00 or 4.00

Independent study of a classical, Byzantine, or modern Greek author. May be repeated for a maximum of 8 credits. Prereq: GREK 503-506, or equivalent. Special fee.

GREK 596 - Directed Reading in Greek

Credits: 2.00 or 4.00

See description for GREK 595.

GREK #631 - Greek Prose Composition

Credits: 4.00

Review of Attic Greek grammar, study of Greek prose style, English to Greek translation. Prereq: permission. Special fee.

GREK 635 - Third Year Modern Greek I

Credits: 4.00

Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent compositions and oral presentations using materials on contemporary culture and literary texts as well as various media. Students develop oral/aural skills in lab and class. Prereq: GREK 505-506; or 595-596 (if approved) with a grade of C or better. Special fee.

GREK 636 - Third Year Modern Greek II

Credits: 4.00

See description for GREK 635.

GREK 751 - Homer and the Archaic Period

Credits: 4.00

Readings from the Iliad, the Odyssey, the Homeric hymns, Hesiod, Pindar, and the lyric poets. Prereq: permission. Special fee.

GREK 753 - Advanced Study in Athenian Literature

Credits: 4.00

A) Aeschylus, B) Sophocles, C) Euripides, D) Aristophanes, E) Herodotus, F) Thucydides, G) Xenophon, H) Plato, I) Aristotle, J) Lysias, K) Demosthenes, L) Isocrates. Major Attic authors from the Battle of Marathon to the death of Alexander the Great. Prereq: permission. Special fee.

GREK 754 - Advanced Study in Athenian Literature

Credits: 4.00

See description for GREK 753.

GREK 795 - Special Studies

Credits: 4.00

A) Pre-Socratic Philosophers; B) Hellenistic Greek Authors; C) Menander; D) Callimachus; E) Apollonius of Rhodes; F) Theocritus; G) Polybius; H) Greek Authors of the Roman Empire; I) Plutarch; J) Septuagint; K) New Testament; L) Greek Church Fathers; M) Byzantine Authors; N) Spoken Greek O) Advanced Greek Composition; P) Introduction to Classical Scholarship; Q) Greek Epigraphy; R) Greek Dialects; S) Comparative Grammar of Greek and Latin; T) Homer: A Linguistic Analysis; U) Greek Institutions; V) Paleography and Textual Criticism. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive.

GREK 796 - Special Studies

Credits: 4.00

See description for GREK 795. Special fee. Writing intensive.

Health & Human Services

HHS 444 - The Right to be Disabled in the Extreme Makeover Society

Credits: 4.00

Explores how society's view of disability, its "construction," is influenced by a variety of cultural variables and the implications of that construction on institutions such as medicine and health care, education, the arts, the legal system, architecture and engineering, etc.

HHS 540 - Statistics for Health and Human Service Professionals

Credits: 4.00

A conceptual and analytical approach to the use of statistics in the health and human service professions. Emphasizes the logic and purpose of statistics. Attention to special problems of statistical design such as random assignment, single subject trials, and the ethics of control groups. Basic computer skills for manipulating data. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; EREC 525; MATH 439; MATH 539; MATH 644; PSYC 402; SOC 502. Special fee.

HHS 698 - Special Topics

Credits: 1.00 to 4.00

Explores areas related to specific professional health interests. May repeat but not duplicate subject areas. A) Communication Disorders, B) Health Management and Policy, C) Medical Laboratory Science, D) Nursing, E) Occupational Therapy, F) Kinesiology, G) Recreation Management and Policy, J) Family Studies, K) Social Work, L) Health Promotion, M-Z) Interdisciplinary. Prereq: permission. Cr/F.

HHS #740 - Collaborative Services for Children with Special Needs

Credits: 4.00

Teachers and therapists need to collaborate to provide quality services for children and youth when working in a school setting. Designed for students in any professional area who plan to work with children, this course focuses on team development to plan integrated education and related services for children with a variety of special needs including autism/PDD, ADHD, learning disability, cerebral palsy, speech and language disorders, and multiple disabilities. Students will learn team development skills, how to collaborate with other professionals to write an IEP and provide services, and how to address needs frequently seen in common pediatric conditions. Prereq: junior level or above.

HHS 798 - Special Topics

Credits: 1.00 to 4.00

Explores areas related to specific professional health interests. May repeat but not duplicate subject areas. A) Communication Disorders, B) Health Management and Policy, C) Medical Laboratory Science, D) Nursing, E) Occupational Therapy, F) Kinesiology, G) Recreation Management and Policy, J) Family Studies, K) Social Work, L) Health Promotion, M-Z) Interdisciplinary. Prereq: permission. Special fee on some topics.

Health Management & Policy

HMP #400 - Exploring Health: Doing Well by Doing Good

Credits: 2.00

Acquaints students with the administrative roles, functions, settings, and professional expectations of health management professionals. Provides an overview of health care organizations and services. Students visit selected health care organizations and talk with professionals.

HMP 401 - United States Health Care Systems

Credits: 4.00

Nature and functions of health care services and health professionals; impact of social, political, economic, ethical, professional, legal, and technological forces on health care systems. Current health policy issues.

HMP 401H - Honors/United States Health Care Systems

Credits: 4.00

See description for HMP 401. Writing intensive.

HMP 401W - United States Health Care Systems

Credits: 4.00

See description for HMP 401. Writing intensive.

HMP 402 - Health Management and Policy Critical Issues

Credits: 4.00

The roles, functions, settings, and professional expectations of Health Management Professionals. Explores key topic areas of health management and policy, including financing the health care system, the public health system, and function, the political process, as well as current areas of interest. Prereq: HMP 401 major or permission.

Co-requisites:

HMP 403 - Introduction to Public Health

Credits: 4.00

Course presents an overview of the structure, function, and organization of the public health system/services (governmental, proprietary, and voluntary sectors) and how they operate, emphasizing core functions and major divisions (public health administration, epidemiology and biostatistics, environmental health, social and behavioral health). Surveys contemporary problems facing society, e.g., workforce issues, bioterrorism, epidemics, and lifestyle choices contributing to obesity, tobacco and alcohol use, violence and challenges students to think critically about them. Introduces public health careers.

HMP 430 - Alternative Medicine and Health

Credits: 4.00

An overview of several systems of medicine and health that employ a framework different from industrialized Western medicine for understanding the nature and causes of disease and approaches to treatment. To better understand the validity or legitimacy of alternative systems, we will also examine current research on the outcomes, effectiveness and efficacy of the various systems.

HMP 444 - From Frankenstein to Dolly, and Beyond

Credits: 4.00

This course is an interdisciplinary introductory course designed specifically for first year students. It seeks to stimulate and support student inquiry and exploration of social and ethical issues associated with

scientific research and advances, the value-laden questions that they often precipitate, and their impact on individuals, population groups, and society at large. (Also listed as MICR 444.)

HMP 501 - Epidemiology and Community Medicine

Credits: 4.00

The distribution and determinants of disease, illness, and health in the community. Community health and illness measures, health status, and source of data. Development of hypotheses and study designs to reduce community health problems using epidemiological reasoning, methods, and analyses. Lab.

HMP 501H - Honors/Epidemiology and Community Medicine

Credits: 4.00

See description for HMP 501.

HMP 505 - Public Health: History and Practice

Credits: 4.00

Blends a broad overview of the historical development of public health with important areas of contemporary public health practice. Traces the history and practices of public health from classical times, through the Middle Ages, the Renaissance, and European Enlightenment. Special emphasis on the historical evolution, development, and future of public health in the U.S. The latter includes the organization of public health in the U.S., its major functions and practices, its infrastructure, its programs and services, and its future challenges.

HMP 569 - Human Behavior and the Public Health

Credits: 4.00

Provides a grounding in fundamental concepts of the behavioral sciences as they illuminate public health. Individual and community responses to prevention, identification of symptoms, diagnoses, treatments, chronic ailments, and rehabilitation are discussed. In each of these areas, the course explores the interaction between community, family, patient, and health care provider.

HMP 570 - Social Marketing

Credits: 4.00

An introduction to the vocabulary and tools of social marketing. Expanding upon the traditional principles of marketing and consumer behavior, students are exposed to the challenges of trying to effect behavior change. Writing intensive.

HMP 600 - Special Topics

Credits: 1.00 to 4.00

A) Hospital Management, B) Long-term Care Management, C) Ambulatory Care Management, D) Clinical Services Management, E) Home Care Management, F) Mental Health Management, G-Z) Interdisciplinary. May repeat, but may not duplicate subject areas. Prereq: junior major or permission. Special fee on some sections.

HMP 621 - Pre-practicum Seminar

Credits: 2.00

Preparation for field practicum experience, orientation to experiential learning and competency development. Prereq: major.

HMP 622 - Field Practicum

Credits: 1.00

Experiential learning in a health care organization; application of theories to practice. Planned learning objectives are accomplished through three distinct components. Supervision by agency personnel. Prereq: junior major; permission. Cr/F. 622A, Field Practicum Organizational Analysis: analysis of assigned health

care agency, from external and internal viewpoints. Coreq: 622B; 622C. Cr/F. 622B, Field Practicum Management Skills Development: development of the basic quantitative and interpersonal skills required for a health services manager. Coreq: 622A; 622C. Cr/F. 622C, Field Practicum Project Analysis: demonstration of knowledge and analysis of specific problem-solving skills required during internship. Coreq: 622A; 622B. Credit/Fail.

HMP 622A - Field Practicum in Organizational Analysis

Credits: 1.00

See description for HMP 622. Cr/F.

HMP 622B - Field Practicum in Management Skills Development

Credits: 1.00

See description for HMP 622. Cr/F.

HMP 622C - Field Practicum in Project Analysis

Credits: 1.00

See description for HMP 622. Cr/F.

HMP 624 - Post Practicum Seminar

Credits: 2.00

Summary and conclusion from field practicum experience. Individual analysis and panel discussions to include site assessment, project description and methodologies employed, critique of individual skills and knowledge base in relation to internship.

HMP 630 - Health Issues Seminar I

Credits: 1.00

Discussion of current issues in the field of health management, health policy and public health. Prereq: major or permission.

HMP 631 - Health Issues Seminar II

Credits: 1.00

Discussion of current issues in the fields of health management, health policy and public health. Prereq: major or permission.

HMP 642 - Health Economics

Credits: 4.00

Theoretical and empirical analysis of the U.S. health care delivery sector. Topics include health insurance markets and their effects on patients demand, uninsured populations and their access to health care services, breakdowns in the principal/agent relationship between patients and providers, competition in the medical sector, technology, pharmaceuticals and the scope and effect of government involvement in the delivery of health care. Prereq: ECON 402. (Also listed as ECON 642.)

HMP #702 - Quantitative Methods in Epidemiology

Credits: 4.00

Builds on previous material in epidemiology and statistics to develop quantitative skills in epidemiology. Includes measures of disease frequency, comparative measures of disease frequency, effects estimation and confidence intervals, contingency table analysis, logistic regression and survival analysis. Students identify appropriate uses for these methods, calculate them by hand using statistical software as appropriate, and interpret statistics. A data set is used for practice calculations and to produce a final project. Prereq: HMP 501. Special fee.

HMP 710 - Financial Management for Clinicians

Credits: 4.00

Basics of health care financial management and cost accounting. Includes cost concepts and product costing, budgeting, and variance analysis with emphasis at the departmental level. Contains basic accounting principles: use of ratio analysis to examine balance sheets and revenue and expense statements. Explores capital project analysis and health care reimbursement. Prereq: HMP 401 or equivalent; permission.

HMP 711 - Health Systems Research I**Credits: 4.00**

Introduces intermediate techniques for data manipulation and analysis for the health care field. Also introduces methods for survey research and large data set manipulation and analysis. There is a lab section utilizing a statistical software package where students perform tasks from a large national data set. Prereq: introduction to statistics.

HMP 712 - Health Systems Research II**Credits: 4.00**

Introduces students to decision science and applies decision making to health systems. Teaches the techniques of health care management, epidemiological analysis, and policy analysis as they relate to the decision making process. There is a lab section with applied exercises. Prereq: HMP 711. Lab.

HMP 715 - Environmental Health**Credits: 4.00**

This course offers a general introduction to environmental health from the community, regional, and global perspective by addressing fundamental topics and current controversies such as air pollution, water pollution, built environment/urban sprawl, food safety, waste disposal, and occupational health. Students learn about environmental health assessment methods. Major issues in environmental health and related regulatory efforts and public health policy reform are examined. Prereq: HMP 501.

HMP 721 - Managing Health Care Organizations**Credits: 4.00**

Organizational characteristics of ambulatory, acute, and long-term care facilities. Management issues and strategies involving governance, clinical services, human and fiscal resources, and community-based services. Prereq: major or permission.

HMP 722 - Health Care Management II**Credits: 4.00**

A continuation of HMP 721 - Managing Health Care Organizations with specific lectures and assignments devoted to organizational behavior, leadership, and managerial skills. Case studies and examples will relate specifically to health care organizations. Prereq: HMP 721.

HMP 723 - Health Planning**Credits: 4.00**

Theoretical and historical foundations of health planning; the relationship of health planning and regulation; the application of planning methods; and the utilization of strategic planning and its relationships to marketing. Prereq: major or permission. Special fee.

HMP #734 - Health Law**Credits: 4.00**

Concepts and principles of law as these affect medical and administrative decision making in health care institutions and the ability to discern issues that warrant advice and/or assistance of legal counsel. Topics include corporations and antitrust, property law, patients' rights under law, and malpractice. Prereq: major or permission.

HMP 740 - Health Care Financial Management

Credits: 4.00

Techniques, principles, and practices of managing fiscal aspects of health care organizations. Exploration of concepts and techniques associated with variance analysis, cost allocation, management of working capital, and capital decision analysis. Analysis of the impact of reimbursement on health care organizations. Lab.

HMP 741 - Management Methods for Health Care Organizations

Credits: 4.00

This course focuses on issues related to effective financial management of health care organizations and programs, building upon material covered in HMP 740, Health Care Financial Management. Topics include the time value of money, long-term debt, stocks and equity, and evaluation of capital projects. Prereq: HMP 740.

HMP 742 - Strategic Management for Health Care Organizations

Credits: 4.00

Application of managerial methods involving financial, marketing, and operational analysis to health management. Case studies. Prereq: major or permission; HMP 740. Lab. Special fee.

HMP 744 - Health Ethics and Law

Credits: 4.00

Ethical theories and decision-making models; patients' rights and professional responsibilities; social justice and resource allocation; critical issues facing clinicians, managers, and health policy makers; managerial versus medical care conflicts. Prereq: major or permission. Writing intensive.

HMP 746 - Health Policy

Credits: 4.00

Analysis of the public policy process, the development of health policies in the U.S., and discussion of specific health policy issues. Prereq: major or permission.

HMP 748 - Health Policy Analysis

Credits: 4.00

Public policy outputs analyzed for effectiveness, efficiency, and equity, focusing on public policies in the United States. Prereq: major or permission. Lab. Special fee

HMP 796 - Independent Study

Credits: 2.00 to 4.00

In-depth study with faculty supervision. Prereq: permission of major adviser and faculty in the area concerned.

HMP 798H - Honors Project/Research Design

Credits: 2.00

Examines selected research designs and methods used in health services research/program evaluation. Establishes theoretical and methodological foundation for honors-in-major research project to be conducted during the subsequent semester under a faculty member's supervision. Prereq: senior honors-in-major status and permission.

HMP 799H - Honors Project/Research

Credits: 4.00

In-depth research project (conducting and analysis) under supervision of faculty member. Includes scholarly presentation of findings to faculty and other interested parties and preparation of manuscript suitable for publication in peer-viewed journal. Prereq: HMP 798H and permission. Writing intensive.

History

HIST 405 - History of Early America

Credits: 4.00

America from the early age of European discovery to the mid-19th century. Emphasizes the interaction of European, Native American, and African peoples; on the separation of the English colonies from Great Britain; and on the establishment and early history of the United States.

HIST 405H - Honors/History Early America

Credits: 4.00

See description for HIST 405. Writing intensive.

HIST 405W - History of Early America

Credits: 4.00

See description for HIST 405. Writing intensive.

HIST 406 - History of the Modern United States

Credits: 4.00

History of the United States since the mid-19th century. Political, social, and economic developments as well as relationships of the modern U.S. with other countries.

HIST 406H - Honors/History of the Modern United States

Credits: 4.00

See description for HIST 406. Writing intensive.

HIST 406W - History of the Modern United States

Credits: 4.00

See description for HIST 406. Writing intensive.

HIST 410 - Historical Survey of American Civilization

Credits: 4.00

Topical survey, within broad chronological divisions, of the development of American civilization since 1600. Writing intensive.

HIST 410H - Honors/Historical Survey of American Civilization

Credits: 4.00

See description for HIST 410. Writing intensive.

HIST 421 - World History to the 16th Century

Credits: 4.00

The global experience of human communities with special emphasis on the development of the major civilizations and their interactions. Comparisons of social, cultural, religious, and political life and the emergence of distinctive and diverse human societies are examined.

HIST 422 - World History in the Modern Era

Credits: 4.00

Emergence of major global human interactions due to the growth of major civilizations. The global context for the rise of the modern West. The rise and decline of Western global domination and the emergence of new states and changing societies throughout the world.

HIST 422H - Honors/World History in the Modern Era

Credits: 4.00

See description for HIST 422.

HIST 425 - Foreign Cultures

Credits: 4.00

Introduces the culture of a particular nation or region; preparation for experiencing a foreign culture. Consult department for listing of topics.

HIST 425H - Honors/Foreign Cultures

Credits: 4.00

See description for HIST 425. Writing intensive.

HIST 425W - Foreign Cultures

Credits: 4.00

See description for HIST 425. Writing intensive.

HIST 435 - Western Civilization

Credits: 4.00

The classical origins and evolution of European civilization through the Renaissance, Reformation, and voyages of discovery. The rise of Europe to global supremacy in the 19th century and its transformation in the 20th century.

HIST 435H - Honors/Western Civilization

Credits: 4.00

See description for HIST 435. Writing intensive.

HIST 435W - Western Civilization

Credits: 4.00

See description for HIST 435. Writing intensive.

HIST 436 - Western Civilization

Credits: 4.00

See description for HIST 435.

HIST 436H - Honors/Western Civilization

Credits: 4.00

See description for HIST 436. Writing intensive.

HIST 436W - Western Civilization

Credits: 4.00

See description for HIST 436. Writing intensive.

HIST 444 - Through Their Eyes: The American Civil War from Primary Sources

Credits: 4.00

Introduces the nature of historical research through an intensive study of the Civil War era, including slavery, abolitionism, and political conflict before the war, as well as the military, social, and political history of the war itself. Use of primary sources such as newspapers, public documents, letters, and diaries, including unpublished manuscripts held in Special Collections, Dimond Library. Writing intensive.

HIST 444A - When is War the Answer

Credits: 4.00

Examines a series of foreign policy crises that might have led, and in some cases did lead, to war between

the United States and some foreign foe. Using diplomatic documents, a basic diplomatic history text book, and a range of secondary sources, we will examine several times when the United States came to the brink of war, and we will ask when and why the nation has chosen to resolve its foreign policy problems with force. Topics include neutrality during the early Napoleonic wars, the War of 1812, the War with Mexico in 1846 and the avoided war with Britain of the same year, the Spanish-American War, both World Wars, Cuba and Vietnam, and the two Iraq wars. Students are able to connect decisions about war with larger trends and developments in U.S. history. In the end, they have refined their understanding of when the nation has chosen to use force as well as their ability to apply that knowledge to future crises. Focus on policy making rather than the impact of war itself, although naturally historical lessons about war shape decision making. Writing intensive.

HIST 444B - Revolutions Across the Atlantic

Credits: 4.00

An exploration of the Age of Revolution, 1776-1800 on both sides of the Atlantic. Beginning with Tom Paine's declaration "Tis Time to Part" that launched the American Revolution and ending with the spread of the French Revolution by bayonets into Switzerland, we investigate the clubs organized against the slave trade, we read the plays that projected imaginary revolutions onto desert islands, and we follow the rumors that spread news of Caribbean revolts to Philadelphia and Paris. This course will be primarily discussion, with some short writing assignments in the first half of the course. Students will research and write their own histories of some facet of revolutionary history in the second half of the course. Writing intensive.

HIST #444C - World War Propaganda in Britain and the United States

Credits: 4.00

Examines multi-media propaganda in World War I and World War II Britain and the U.S. to investigate the total war experience, the relationship between these two nations, and the workings of a critical weapon. Propaganda was a bloodless weapon in an era of high-tech tools, but it was also a feared and ubiquitous one. Some of the issues addressed in this course include: Who were some of the targets of propaganda? How were posters different from films or radio broadcasts? What were the messages of propaganda? What does propaganda say about these nations as cultures and societies as well as about their war efforts? We analyze multimedia primary sources as well as use secondary ones in our discussions. Writing intensive.

HIST 444D - Slavery and Society in Pre-Colonial Africa

Credits: 4.00

Examines the evolution and practice of the institution of slavery in Africa from the earliest times to the era of European colonialism. Using contemporary personal narratives by the slaves, the course examines specific historical contexts of various slave systems, continuity and change in the ideologies and practices of slavery, religion and slavery, race and slavery, gender and slavery, conditions of slaves, as well as the making and uses of slaves - as domestics, concubines, eunuchs, officials, soldiers, labor and capital. Using films, slide images, and a comparative approach, African slavery will be examined within the context of the early evolution of slavery in the Mediterranean and Islamic worlds as well as its later expressions in the Atlantic world of the Americas.

HIST #444E - American at War: Society, Culture, and the Home Front

Credits: 4.00

Course will examine how the preparation for war, war itself, and the legacy of war shape American society, culture, and national identity. Students explore the relationship of war to topics such as American politics, literature, music, visual arts, popular culture, as well as gender, ethics, and race relations. Primarily discussion with short writing assignments in the first part of the course. Students research topics of their choice in the second and third parts of the course. Writing intensive.

HIST 444F - Collective Guilt and Collective Responsibility in History

Credits: 4.00

Most Americans recognize the Holocaust as an extraordinary crime, though there is less agreement about who was responsible, whether justice was rendered and appropriate compensation awarded survivors. Things become more complicated when examining what might be considered crimes committed by Americans. This course concentrates both on the Holocaust and the "underside" of American history and poses questions about the connections between the past and the responsibilities of citizenship in the present. Writing intensive.

HIST 483 - History of World Religions

Credits: 4.00

Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. Begins with the religions of small and tribal societies (e.g., African, Native American), moves through religions of complex societies (e.g., Hinduism), and then studies the various traditions that emanated from ancient revelations: Zoroastrianism, Buddhism, Judaism, Christianity, Islam, and certain new forms of Christianity. This initial survey of world religions prepares students for HIST 484.

HIST 483W - History of World Religions

Credits: 4.00

See description for HIST 483. Writing intensive.

HIST 497 - Explorations in Historical Perspectives

Credits: 4.00

Seminar for freshmen and sophomores. In-depth exploration of a particular historical question or topic: for example, the French Revolution, Chaucer's England, or the New Deal. Students should consult with the Department of History for a list of topics and instructors.

HIST 497H - Honors/Explorations in Historical Perspectives

Credits: 4.00

See description for HIST 497. Writing intensive.

HIST 497W - Explorations in Historical Perspectives

Credits: 4.00

See description for HIST 497. Writing intensive.

HIST 500 - Introduction to Historical Thinking

Credits: 4.00

Basic skills essential to the study of history: critical reading of historical literature, improvement of written and oral analysis of historical material, and use of library resources. Intensive study of books and documents from varying historical fields and periods. Required of history majors; open to other interested students. Writing intensive.

HIST 501 - Medieval Military History

Credits: 4.00

Western societies from the Roman Empire to the emerging nation states of early modern Europe spent an enormous proportion of their surplus wealth on war. This course introduces this crucial aspect of Western history and examines the period extending from the third century AD, to just before the extensive introduction into Europe of gunpowder weapons in the fifteenth century. Discussion of not only battlefield tactics and famous generals but also the effect that war had upon society as a whole and the economic ramifications of war, the Christianization of war, and the effect of war upon literature.

HIST #502 - Latin Readings in Medieval History

Credits: 1.00

Provides students with an opportunity to read medieval sources in their original language. Helps students with a background in Latin improve their reading ability, and exposes them to the challenges of conducting historical research in a foreign language. Latin readings taken from many of the major medieval narrative sources from the fifth through the fourteenth century. May be repeated up to a maximum of 8 credits. Prereq: LATN 402 or equivalent.

HIST 503 - Soviet Dreamers, Despots, and Dissidents

Credits: 4.00

Through the study of individual biographies and writings of male and female Russian revolutionaries, Soviet leaders, and prominent dissidents, course examines the question of how the combination of Russian culture and Marxism created both cruel despotism and profound advocacy for social justice and universal human rights. Lecture and discussion. Response papers and essay exams. Readings include revolutionary texts, laws, biographies, novels, films, and scholarly articles about 20th century Russia/USSR. Writing intensive.

HIST 505 - African American History

Credits: 4.00

Experiences, aspirations, and contributions of black Americans from their ethnic origins in Africa to the present American crisis in race relations; comparative study of cultures and institutions. Colonial America to the Civil War. Writing intensive.

HIST 506 - African American History

Credits: 4.00

See description for HIST 506. Reconstruction to the present. Writing intensive.

HIST 509 - Law in American Life

Credits: 4.00

Investigates the role of law in American social, political, and economic life from the European settlements to the present. Traces the development of legal institutions, but focuses on the various functions of law (e.g., in structuring social relationships, allocating resources, defining governmental authority, expressing social and moral values, and as a mechanism for control).

HIST 511 - History of New Hampshire

Credits: 4.00

From pre-settlement times to the present, emphasizing the use of locally available materials and sources. Writing intensive.

HIST 521 - Origins of Modern Science

Credits: 4.00

Development of scientific ideas in Europe from the Renaissance through the Scientific Revolution to the Enlightenment. Topics include themes in the physical and biological sciences and their relations to cultural and social contexts. No special science background is required.

HIST 522 - Science in the Modern World

Credits: 4.00

Development of science, particularly in Europe and North America, from the 18th century to the present. Themes including Darwinism, the growth of modern physical and biological sciences and science in the contemporary world. No special science background is required.

HIST #531 - Americas: Introduction to Latin America and the Caribbean

Credits: 4.00

The thirty-three countries of the region are important trading partners and resource suppliers for the United

States. Examines the history, culture, politics, economics, social structures, and the international relationships of this region. Ranges from the macro-level discussion of economics, to personal and family issues, to key moments in history, to aspects of local and transnational cultures. Individual community and country examples illustrate larger processes affecting the whole region. Stereotypes and generalizations challenged by stressing the human face of national development, military rule, democratization, migration, urbanization, color, class, identity, women's roles, religion, popular culture, sovereignty, revolution, and the impact of migrants from the region on the United States.

HIST 532 - Modern Latin America

Credits: 4.00

Provides a broad overview of Latin America from the 18th century to the present. It examines the breakdown of colonial rules, the establishment of independent countries, the formation of viable nation states, the importance of geography, the roles of the different elements of society. Social, political, and economic changes and continuities emphasized to give a sense of the ambiguities of the historical process. Cultural differences illustrated with slides and music. The effects of elite rule and of United States interventions studied. Writing intensive.

HIST 537 - Espionage and History

Credits: 4.00

Introduces the history and politics of espionage and intelligence organizations in modern times. Special attention to intelligence work among the major powers in World War I, World War II, and the Cold War. Readings include autobiographical accounts and other primary sources as well as novels.

HIST #538 - Modern European War and Society: The Napoleonic Wars to World War II

Credits: 4.00

This course is organized around three conflicts: the Napoleonic Wars, World War I, and World War II. As we study them, we'll discuss the evolution and impact of total war in order to understand how societies work in wartime and how these conflicts have shaped Europe. In our Exploration of each war, we examine a range of participants from international alliances to individual soldiers and civilians involved in the conflict. Total war, by its nature, incorporates most elements of society, so we will spend time looking at the homefronts as well as the battlefronts. We will survey the conflicts as a whole, but also devote time to some special events or elements. For example, we will look at the battle of Somme during the portion of the course dedicated to World War I. We will also study some of the art that arose out of the conflict. The core of the class will be lectures, but we will engage in some discussion almost every day and there are some classes that will be dedicated to discussion.

HIST 540 - Foundations of Medieval History: 300-1300 CE

Credits: 4.00

Introduces the history of Western Europe from the end of the Roman Empire to the late twelfth century. Particular focus on the history of Christianity, social and economic structures, the role of women in medieval culture, and literacy and learning. Writing intensive.

HIST 560 - History of Great Britain

Credits: 4.00

See description for HIST 559.

HIST 563 - Introduction to Russian Culture and Civilization

Credits: 4.00

Interdisciplinary course on the development of Russian culture from its origins through the end of the 19th century. Historical documents, literary works, ethnographic materials, films, slides of Russian art, and music.

HIST 565 - Women in Modern Europe

Credits: 4.00

A social history of women in Europe from 1700 to the present. Examines the development of the "modern nuclear family," transformations in women's work during the industrial revolution, and women's political evolution from bread rioters to hearth tenders to petitioners. Sources include published diaries, historiographical studies, and novels.

HIST 566 - Women in American History

Credits: 4.00

Key changes in women's roles in the past three centuries with an emphasis on the peculiarities of the American setting. How, for example, were women's lives affected by the frontier; the intersection of Europe, African, and Native American cultures; religious diversity; the problem of defining citizenship in a democratic republic? Students will sample recent scholarship in women's history and study a wide variety of documents produced by women.

HIST #567 - History of Canada

Credits: 4.00

Covers the development of Canada from first contacts to the modern era, with an emphasis on the twentieth century. Particular focus is on Canada's position between Great Britain and the United States, Anglo-French tensions internally, and the shifting place of the First Nations in Canadian society.

HIST 575 - Ancient Near East

Credits: 4.00

From the Neolithic revolution to the time of Alexander the Great. Rise of civilization; nature of human artistic and intellectual development in the earliest civilizations of Mesopotamia and Egypt; Judaism in its historical setting.

HIST 576 - Hebrew Bible in Historical Context

Credits: 4.00

An introductory study of the Hebrew Bible, or Old Testament, examining the development of biblical literature in the context of ancient Near Eastern cultures and history. Interpretations of the creation stories and patriarchal narratives using literary and folklore methods; the transformation of Israelite religion from Moses to David to Ezra; the role of prophets and nature of ancient prophecy; the concept of the messiah; "wisdom" literature and the biblical interpretations of misfortune; the formation of a biblical canon; and the critical analysis of sacred texts. (Also offered as RS 576.) Writing intensive.

HIST 579 - History of China in Modern Times

Credits: 4.00

The transformation of Chinese society from 1600 to the present. Attention will be given to political and cultural developments as well as China's interaction with the outside world.

HIST 580 - History of Japan in Modern Times

Credits: 4.00

Explores major tendencies in Japanese history from the Tokugawa period to present. Will stress the interrelatedness of political, social, institutional, and literary developments so as to achieve a complex view of modern Japanese society.

HIST #583 - Mystic and Saint in Islam

Credits: 4.00

Examines how and why a cult of Sufi saints became such a significant part of religious practice in medieval Islamic Egypt and Anatolia.

HIST 584 - Patterns in World Religions

Credits: 4.00

Introduces the comparison of religions and religious patterns. Examines cross-cultural themes like sacred places, sacred books, and sainthood. Through readings, students become acquainted with methods used in the historical study of religions. Primary and secondary readings encompass a wide variety of religious practices and ideas in Hinduism, Buddhism, Christianity, Islam, Judaism, as well as tribal religions. Ethnographic films supplement readings and lectures. Some classes may be adjusted to accommodate guest lecturers in medieval European history. Prereq: HIST 483 recommended. Writing intensive.

HIST 585 - Venture of Islam: 6th-15th Century

Credits: 4.00

The origins and expansion of Islam and the development of the Muslim community from the time of Muhammad until the Islamic empires of the 16th century. Attention is given to religious and artistic as well as political developments.

HIST 586 - Islam in the Modern Age, 15th Century to present

Credits: 4.00

Emergence of modern Middle Eastern states and societies from the time of the Ottoman Empire to the present. A survey of major developments, including the emergence of nationalism, the Islamic resurgence, and social transformations.

HIST 587 - History of Africa South of the Sahara

Credits: 4.00

From ancient times to the present. Semester I: from prehistoric times to 1870. African migrations, kingdoms, and societies; African responses to the slave trade; Islam; European imperialism, colonialism, and industrialization; African nationalism, independence, and post-independence problems.

HIST 588 - History of Africa South of the Sahara

Credits: 4.00

From ancient times to the present. Semester II: from 1870 to present. African migrations, kingdoms, and societies; African responses to the slave trade; Islam; European imperialism, colonialism, and industrialization; African nationalism, independence, and post-independence problems.

HIST 589 - Islam in Africa

Credits: 4.00

Focuses on the advent, spread, and major consequences of Islam in Africa. Examines the major phases of Islamic expansion: early conquests in North Africa and the Iberian Peninsula, the spread of Islam across the Sahara into the Sudan, the jihadist and reformist movements of the 18th and 19th centuries and the development of Islam during the colonial and postcolonial era. Emphasizes the varieties of the practice of Islam, the role of Islam in states formation and the impact of Islam on the religious and social life of the African peoples. The intersections of Islam with the issues of trade, slavery, politics, gender, imperialism, and modernization, the rise of Islamic fundamentalism, the place of North Africa within the Mediterranean Islamic culture, as well as the relationships of Islam with indigenous religions and with Christianity in African history and societies explored.

HIST 595 - Explorations

Credits: 1.00 to 4.00

See department listings for semester topic. Topic Empire, Democracy, and War is Writing intensive.

HIST 596 - Explorations

Credits: 1.00 to 4.00

See department listings for semester topic.

HIST 600 - Advanced Explorations

Credits: 1.00 to 4.00

See department listings for semester topic. Barring duplication of subject, may be repeated up to a maximum of 8 credits.

HIST 601 - Seminar in Religious Texts

Credits: 4.00

Close study of sacred text(s) from a particular religious tradition (Islam, Christianity, Buddhism, Judaism, etc.) or a thematic selection of texts across religions. (Also offered as RS 601.)

HIST 602 - Holocaust: The War on Europe's Jews

Credits: 4.00

The attempted destruction of European Jewry during the Third Reich is one of the pivotal events in the history of modern Western Civilization. Course explores the circumstances and behavior of the Jews (as victims, resisters, survivors), the perpetrators (German and non-German), bystanders (German, European, and American), and rescuers (German and non-German). Attention is also given to such post-1945 matters as justice, compensation, and memory.

HIST 603 - European Conquest of America

Credits: 4.00

Study of the social consequences of colonization, migration, and war in America, 1500-1775. Emphasis on the interaction of British colonies with competing European cultures (French, Dutch, Portuguese, and Spanish), with Native Americans, and with African American slaves.

HIST 605 - Revolutionary America, 1750-1788

Credits: 4.00

Examines the social, political, and cultural transformation of thirteen British colonies into the United States, up to the adoption of the Constitution.

HIST 606 - History of the Early Republic

Credits: 4.00

Explores the histories of the people and institutions that transformed the new United States from a coastal republic of largely independent freeholders to a transcontinental democracy increasingly driven by class. Topics include slavery, the family, reform movements, and the formation of national identity.

HIST 608 - Arts and American Society: Women Writers and Artists, 1850-Present

Credits: 4.00

Team-taught course studying the impact of gender definitions on the lives and works of selected American artists. Considers lesser-known figures such as Fannie Fern, Lilly Martin Spencer, and Mary Hallock Foote as well as better-known artists such as Willa Cather and Georgia O'Keefe. Prereq: permission or one of the following: WS 401, HIST 566, ENGL 585 or 586, ENGL 685 or 785, or a 600-level art history course. (Also offered as ARTS 608, ENGL 608, and HUMA 608.) Writing intensive.

HIST 609 - Special Topics in American Legal History

Credits: 4.00

In-depth thematic exploration of law in American life. Topics include race and equality in America; community, pluralism, and American law; property, liberty, and law; gender and law. May be repeated for credit with instructor's permission. Prereq: HIST 509 or instructor's permission. Consult department listings of topics. Writing intensive.

HIST 611 - Civil War Era

Credits: 4.00

Surveys the period from the presidency of Andrew Jackson to the end of the Reconstruction. Focuses on causes, course, and consequences of the Civil War. Topics include slavery in the Old South, antebellum reform movements, creation and breakdown of the Second Party System, social and economic (as well as military) events during the war and major developments during Reconstruction after the war.

HIST 612 - Emergence of Industrial America

Credits: 4.00

Investigates the economic transformation of 19th-century America from a rural, agricultural society to an urban, industrial one. Explores the sweeping economic changes and focuses on such topics as change in work and leisure, westward expansion and its effects on Native Americans, shifts in gender roles, growth of a consumer culture, rise of the labor unions, Populism, immigration, reform and regulation movements, growth of American imperialism, and intellectual developments.

HIST 615 - United States Progressivism to the New Deal

Credits: 4.00

United States from 1900 to 1941: cultural, political, and social factors causing major changes in American life.

HIST 616 - United States Since World War II

Credits: 4.00

United States since 1941; cultural, political, and social factors causing major changes in American life.

HIST 617 - Vietnam War

Credits: 4.00

An advanced interdisciplinary study of the American experience in Vietnam which utilizes fiction, film, music, and historical analysis to examine such matters as how and why the United States became involved in Vietnam, went to war there, and failed to win, as well as the consequences and legacies of that fateful conflict. It is strongly suggested that students first complete courses in modern American history.

HIST 618 - American Environmental History

Credits: 4.00

Examines how nature has been a factor in American history and how Americans have wrestled with the concepts of nature and culture. Topics include industrialization, evolution, conservationism, environmentalism, and environmental diplomacy.

HIST 619 - Foreign Relations of the United States

Credits: 4.00

The history of American diplomacy from the colonial era to the present, with the dividing point at 1900. The focus will be on both the foreign and domestic influences that shaped American diplomacy.

HIST 620 - Foreign Relations of the United States

Credits: 4.00

See description for HIST 619.

HIST 622 - History of American Thought

Credits: 4.00

Significant American thinkers considered in their social context. 1860 to present.

HIST 623 - Early American Social and Cultural History

Credits: 4.00

Gives students the opportunity to explore some of the recent findings of scholars who have studied Early American social and cultural history. Focuses on the experiences of Anglo-Americans and on the

experiences of many of the other people with whom Anglo-Americans were frequently in contact, and who also shaped Early America. Includes consideration of the pan-Atlantic context of Early America, cross-cultural contacts, family and gender, labor systems, religious observations, crime, and other themes explored in recent social and cultural theory.

HIST 624 - Topics in Modern United States Social History

Credits: 4.00

Advanced study of topics in U.S. social history since the Age of Jackson. Topics will vary; may include slavery and the antebellum South, reform movements in U.S. history, family history, labor history, the impact of war on American society, race in recent U.S. history. May be repeated as topics change.

HIST #625 - Southern History and Literature since the Civil War

Credits: 4.00

Equal focus on the history and literature of the South since the Civil War. Topics include reconstruction, the age of segregation, and the Civil Rights Movement. Literary focus is on the period since 1920, including the "Southern Renaissance." Authors include William Faulkner, Robert Penn Warren, Flannery O'Connor, and Zora Neale Hurston.

HIST #631 - History of Brazil

Credits: 4.00

Brazil has the fifth largest territory, the sixth largest population, and the eighth largest industrial economy in the world. Its colorful history has many distinctive features: the only country in the Americas to have been the capital of a European monarchy and then to have its own emperor for most of the last century; an outwardly peaceful image masking internal violence and turmoil; a suspicion of foreigners balanced by a desire to be accepted by them as equals; seemingly benevolent racial attitudes that serve to keep people of color on society's lower range; a tremendous cultural creativity that has given the world samba, film star Carmen Miranda, composer Heitor Villa Lobos, songwriter Antonio Carlos Jobim, poet Vinicius de Moraes, and novelist Jorge Amado. Includes an examination of the roles of various elites; political, social, economic, military, cultural, and religious. HIST 531, 532 recommended

HIST 632 - Latin American History: Topics

Credits: 4.00

Topics vary (see department listing for current semester). Seminar entails reading, discussion, and research on literature and documents related to the selected topic. Provides students with the opportunity to do research under close direction.

HIST 633 - Medieval England 800-1300

Credits: 4.00

This course provides students with an opportunity to gain an in-depth understanding of the history of medieval England from the beginning of the period of consolidation under the Wessex dynasty in the ninth-century through the end of the thirteenth century. In addition to obtaining a large corpus of information through the reading of a significant monographs dealing with England during this period, students will be challenged to develop the critical analytical skills necessary for the thorough understanding and practice of historical methodologies, with a particular focus on the practice of historical method in writing medieval history. Finally, students will be given the opportunity to improve their communications skills through extensive class discussions dealing with the scholarly works read for this course, and in writing assignments.

HIST 634 - Medieval Empires

Credits: 4.00

This course will explore the intellectual and political foundations of imperial rule in the Middle Ages with a particular focus on the Carolingian, German, and byzantine empires of the early and high Middle Ages. The

course will begin with the development of the idea of empire under Alexander the Great and then during the Roman empire. The course will then turn to an examination of how the rulers of the three great empires of the western Middle Ages adapted the classical ideas and practices of empire for their purposes. The course focuses on sources. Background material will be provided in short lectures.

HIST 640 - Holy War in the Holy Land: The Medieval Crusades

Credits: 4.00

Survey of the medieval military expeditions organized by Christians to secure the Holy Land during the 12th and 13th centuries. Topics considered include the formulation of a "just war" theory; political, intellectual, religious, and military interactions between Christians, Jews, and Muslims; the Crusader State of Jerusalem; and the histories of individual crusades.

HIST 641 - Europe after the Black Death

Credits: 4.00

Explores the dramatic changes that characterized Western Europe as it rebounded in the fifteenth through the seventeenth centuries from the ravages of the Black Death of 1348. Examines the social, political, and artistic developments in late medieval and Renaissance Italy before "crossing the Alps" to trace the expansion of Renaissance culture in Northern Europe. Topics include the humanist movement; new patterns of social organization; the revival of classical antiquity in the arts, architecture, religion, and political theory; the effects on European society of the encounter with the "New World"; shifting roles for men and women in early modern European societies; religious war and conflict.

HIST 642 - Religious Conflict in Early Modern Europe

Credits: 4.00

Religious, social, and political maps of Europe were profoundly and permanently altered in the sixteenth and seventeenth centuries due to the split of the Protestant churches from the Roman Catholic church initiated in 1517 by Martin Luther. Explores the background to the Protestant Reformation of the sixteenth century and investigates the various personalities--the Protestant and Catholic reformers; the princes, artisans and peasants; the Anabaptist radicals--who shaped this era of religious change and conflict. Also explores the important effects of religious change on European society and culture at that time, including changes in gender roles, family life, and popular cultural practices such as magic and witchcraft.

HIST 644 - Victorian Britain

Credits: 4.00

The Victorian Era was a time of contrasts. Upon the throne sat Queen Victoria, a monarch known for her moral uprightness, sexual probity and rigid sense of decorum. The streets of London, however, teemed with prostitutes, pickpockets and impoverished Irish immigrants whose lives seemed untouched by either the prosperity or moral stringency that characterized the age. In this class we explore the varieties of Victorian experience both at home and in the global empire Britain had amassed during the nineteenth century. Examining sources such as the novels of Charles Dickens, the decorative arts of William Morris, and the scientific writings of Charles Darwin, we attempt to uncover the many-faceted culture, society and political life of Victorian Britain. The instructor places a strong emphasis on reading, class participation and writing.

HIST 645 - 19th Century European Great Powers - Diplomacy and International Law

Credits: 4.00

In this course, we will study power in Europe during the apogee of that region's strength. The long nineteenth century is a period during which Europe avoided major continent-wide (and world-wide) wars, despite constant upheavals. That is a remarkable accomplishment when one compares the events of the nineteenth century with those of the twentieth, despite the fact that the former influenced the latter. Focus is on those who wielded power internationally, including dealmakers, deal-breakers, manipulators, and idealists. To express, test, restrain, or leverage power, actors engaged in wars and negotiations that led to

a range of contracts from treaties, such as the Treaty of Fontainbleau ending Napoleon's reign; to alliances, like the Anglo-Japanese Naval Alliance ending Britain's "splendid isolation" from international partnerships; to conferences, including the Hage Conventions regulating wars. In addition, it is important to look at statutes influencing foreign policy, as did the Second German Naval Law of 1900 which increased European tensions before World War I. Examining the relations of powerful nineteenth century states, therefore, illuminates international law as well as more traditional elements of diplomacy. Students learn about 19th century great powers of Europe and important pieces of international legal relationships as well as develop critical thinking and communication skills.

HIST 647 - Early Modern France

Credits: 4.00

Explores the culture and politics of early modern French society. Popular culture, religion, gender relations, the family, state-building, political theory, and revolution are emphasized. Primary documents in translation are read and discussion is encouraged.

HIST 648 - Modern France

Credits: 4.00

French society from Napoleon to Mitterand. Topics include the Revolution of 1848 and the Paris Commune; World Wars and the Vichy regime; Existentialism, DeGaulle, and the Revolt of May-June 1968.

HIST 652 - Topics in European Intellectual History

Credits: 4.00

Explores such major developments as the Enlightenment, Russian intellectual history, and the relationship between gender and intellectual history. Includes topics since the Renaissance. Since topics vary, students should check the department newsletter or office for course theme in any given term. May be repeated as topics change to a maximum of 12 credits.

HIST 654 - Topics in History of Science

Credits: 4.00

Advanced study of a selected topic in the history of European science since the Renaissance.

HIST 656 - 20th Century Europe

Credits: 4.00

World War I, European totalitarianisms, World War II, the loss of European primacy and the search for a new Europe.

HIST 662 - England in the Tudor and Stuart Periods

Credits: 4.00

See description for HIST 661.

HIST 664 - Russia: Modernization through Soviet Empire

Credits: 4.00

The challenges of modernization, experience and legacy of Leninist and Stalinist revolutions. Soviet consolidation and decline through the Gorbachev era.

HIST 665 - Themes in Women's History

Credits: 4.00

In-depth examination of a selected topic in women's history. Topics may include Women and Health, Women in Modern European Political Theory, Comparative History of Women and Revolution. See Time and Room Schedule of history department newsletter for the specific topic. May be repeated for credit with permission of instructor.

HIST 666 - Environmental History of Northwest Atlantic Commercial Fisheries

Credits: 4.00

After centuries of ground-fishing humans have radically transformed the northwest Atlantic marine ecosystem, creating a tragedy for both fish and fisherman. This marine environmental history course considers the changing technology, ecology, and sociology of the commercial fishery off New England and the Canadian maritime from 1500 to the present.

HIST 669 - Germany from 1918 to Present

Credits: 4.00

Begins with the revolution of 1918 and then explores the political, social, and intellectual character of the Weimar Republic, the rise and nature of Nazism, the Holocaust, the foundation of both the German Democratic Republic and Federal Republic and their evolution in the shadow of the Cold War, and concludes with the unification of Germany after the fall of the Berlin Wall in 1989.

HIST 675 - Early History of Ancient Greece

Credits: 4.00

Greek history from the Minoan and Mycenaean eras through the Persian Wars of the early fifth century. Emphasis on original sources including the Homeric epics, Plutarch, Sappho, and Herodotus. Examination of the distinctive developments of political systems in Sparta and Athens, as well as issues of colonization, diplomacy, religion and culture. Thorough discussion of types of available evidence and their integration into historical understanding.

HIST 676 - Classical and Hellenistic Greek Worlds

Credits: 4.00

Greek history from the Persian Wars of the early fifth century through the life of Alexander the Great and the creation of the Hellenistic world. Emphasizes original sources including Herodotus, Thucydides, the Athenian playwrights, and Plato. Examines the transformation from city-state political organization to large Hellenistic kingdoms, as well as discussion of Greek historiography, intellectual life, and social theory. Thorough discussion of types of available evidence and their integration into historical understanding.

HIST 677 - Roman Republic

Credits: 4.00

Covers pre-Roman Italy, the Etruscans, and the foundation of the Republic, Rome's expansion through the Punic Wars, relations with the Hellenistic kingdoms, and disintegration and final collapse of the Republic. Includes discussions of Roman art, engineering, and political theory. Emphasis on Latin sources in philosophy, history, and literature.

HIST 678 - Roman Empire

Credits: 4.00

Collapse of the Roman Republic and creation of the Augustan principate. History of the principate through the division of the empire, with discussion of the fall of Rome in the west and the eastern empire through Justinian. Discusses Roman art, literature, philosophy, and religious developments such as the proliferation of mystery religions and the rise of Christianity.

HIST 679 - Rights Revolution

Credits: 4.00

It is all but impossible to think or talk about contemporary legal and moral controversies without invoking the idea of "rights." Yet few of us can claim a clear understanding of this pivotal concept. Historically, how have particular claims, preferences, and socio-economic interests attained the status of publicly-recognized "rights" Are there other ways to conceptualize and prioritize rights, other forms of "rights talk," than the ones we currently employ? History 679 takes as its point of departure the enormous expansion in rights claimed by both individuals and groups in recent decades -- the "rights revolution." This development has

elicited both praise and alarm, and we will examine the philosophical, moral, and political dimensions of each.

HIST 680 - Historical Geography

Credits: 4.00

Introduces major themes, important scholars, and commonly used research techniques in historical geography. Course is reading and research oriented. Focus is on North America. Writing intensive. (Also listed as GEOG 680.)

HIST 681 - Modern China Topics

Credits: 4.00

Problems in modern Chinese history from 1800 to the present. Topics may vary. Students read translated primary sources, analyze literary works, and write critical essays and a research paper. History 579 is recommended.

HIST #682 - Cults and Charisma

Credits: 4.00

Examines religious sects and charismatic leaders using case studies from history and the contemporary world, as well as analytical principles from religious studies and anthropology. Explores various approaches to the question: what makes a person powerful over others, in connection with the formation of messianic sects, the genesis of the "cult," the traditional authority of priests and kings, sainthood, the events at Jonestown and Waco, and the popular image of the "cult." Students learn to employ a variety of tools and models to understand historical situations of charismatic leadership. (Also offered as RS 682.)

HIST #684 - History of Southern Africa since 1652

Credits: 4.00

Examines the major themes in the history of a troubled sub-region of Africa. In-depth exploration of the nature and impact of socio-cultural formations, the evolution of centralized societies, the initiation and expansion of white settlements, and the Mfecane revolution. Analysis of the dynamics and consequences of European imperialism, economic competition and industrialization, European settler-nationalism, racial conflict, slavery, class and gender politics, Indian and African nationalism, democratization, and development in post-colonial and post-apartheid Southern Africa.

HIST #685 - Modern Middle East

Credits: 4.00

From the 18th century to the present. Problems created by modernization and reform of the traditional society; conservative reaction to reform, impact of nationalism, and appearance of new ideologies.

HIST 688 - African Religions

Credits: 4.00

An interdisciplinary introduction to basic principles of African religions including historical and recent developments in the study of religion in Africa. Covers the place of religion in African societies and the interrelatedness of religion with myth, ritual, music, art, orality, gender, economics, social process, illness and healing, and kingship and power. Particular attention to African religions in the Americas and the history and impact of Islam and Christianity in Africa. Helps students to understand what is typical about religion, and special about African religion, while appreciating the role of religion in non-Western societies. Slides, films, maps and other visual aids as well as readings.

HIST #689 - New Testament in Historical Context

Credits: 4.00

Introduces the collection of writings known as the New Testament as both literature and historical documentation. Assigned readings from primary and secondary sources stress the historical, social,

religious, and literary backgrounds of gospels, Paul's letters, and the Apocalypse, and include a variety of early Christian texts left out of the canonical New Testament. Will touch on more general themes such as the religious world of the Roman Mediterranean, Judaism in the time of Jesus (and the Jewish character of the early Jesus-movement), apocalyptic visions and expectations, the diversity of "Christologies" in the century after Jesus' execution, the formation of the Christian Bible, and the interpretation of parables. Emphasizes the historical-critical, rather than confessional, understanding of early Christian documents. (Also listed as RS 689.) Writing intensive.

HIST 691 - Internship

Credits: 4.00

Supervised internship with a governmental agency, private corporation, philanthropic institution, library, archives, museum, historical society, or other institution seeking individuals interested in historical research. May be repeated up to a maximum of 8 credits. Cr/F.

HIST 695 - Independent Study

Credits: 4.00 to 8.00

A) Early American History, B) American National History, C) Canada, D) Latin America, E) Medieval History, F) Early Modern Europe, G) Modern European History, H) Ancient History, I) Far East and India, J) Near East and Africa, K) European Historiography, L) American Historiography, M) Russia, N) World History, O) English History, P) New Hampshire History, Q) Historical Methodology, R) Irish History, S) History of Science, T) Maritime, U) Museum Studies. For students showing a special aptitude in history who desire to study an area or subject for which no appropriate course is offered. May be repeated up to a maximum of 8 credits. Prereq: permission

HIST 698 - Internship in Museum Studies

Credits: 4.00

Supervised position with a museum, historical society, archive, or other history related site. Cr/F.

HIST 701 - Seminar: Historical Explorations

Credits: 4.00

A seminar for advanced undergraduates and graduate students on a selected topic. Topics will vary by semester. This course is discussion-based and meets once a week. There are no prerequisites for this course, but students should expect to be assigned substantial reading and writing.

HIST 771 - Museum Studies

Credits: 4.00

Introduction to theory, methods, and practice of museum studies. Examination of various museum functions, as well as contemporary historical controversies.

HIST 772 - Studies in Regional Material Culture

Credits: 4.00

Introduces the theory and methodology of material culture, that is, the study of history through the analysis of buildings, human-created landscapes, and artifacts made and used in the United States, particularly in New England. May be repeated for credit with permission of undergraduate adviser.

HIST 774 - Historiography

Credits: 4.00

Analysis of ancient and modern historians. Open to undergraduates with permission. (Not offered every year.)

HIST 775 - Historical Methods

Credits: 4.00

Contemporary historical methods. Required of all entering Ph.D. candidates; open to undergraduate with permission. (Not offered every year.)

HIST 780 - Special Topics in Museum Studies/Material Culture

Credits: 4.00

Study of a selected topic related to museum studies or material culture. May be repeated for course credit with permission of the undergraduate adviser.

HIST 787 - Quantitative Methods and Computers for Historians

Credits: 4.00

The historian's use of computers and statistics: opportunities and problems in using and analyzing quantitative sources; elementary statistical techniques; practical applications involving microcomputers and applications programs. No previous knowledge of computers or college mathematics is assumed or required. Prereq: admission as an undergraduate major or graduate student in history; or permission of the instructor. (Not offered every year.)

HIST 789 - Seminar in the History of Science

Credits: 4.00

In-depth examination of a selected topic in the history of science. Subject varies. Open to undergraduates with permission of the instructor. No special background in science required.

HIST 796 - Research Internship

Credits: 2.00 to 4.00

Intensive collaborative experience in research for undergraduate majors. Students gain professional skills while assisting a faculty member on a continuing research project. Permission Required.

HIST 797 - Colloquium

Credits: 4.00

Selected topics in American, European, and non-Western history. Required of history majors. Students must elect section in the department office at the time of registration. Prereq: HIST 500. Writing intensive.

HIST 799 - Senior Thesis

Credits: 4.00

Supervised research leading to the presentation of a major research paper. Open only to history majors. Permission of department chairperson required. May not be used as a substitute for the required senior colloquium.

Horticultural Technology

HT 201 - Freshman Seminar

Credits: 1.00

An introduction to the horticulture technology, the Thompson School, and the University: programs, expectations, advising, and resources. Survival skills for college including time management, study skills, and note-taking. Career preparation including portfolios, resumes, professional organizations, and continuing education. Special fee. 1 hr. lec. Cr/F.

HT 204 - Plant Propagation

Credits: 4.00

Reproduction of plants for horticultural purposes by sexual and asexual methods. Seeds, cuttings, separation, division, layering, grafting, budding, and in vitro propagation. Special fee. Prereq: HORT 207 or permission. 2 lec/1 lab.

HT 205 - Plants, People, Place

Credits: 2.00

An introduction to the New England bioregion through exploration of the interrelationships of plants and plant communities, humans and human culture, and the landforms and natural systems of New Hampshire. Includes field identification of common native and exotic plant species. Special fee. 1 lec/1 lab.

HT 207 - Plant Structure and Function

Credits: 4.00

Morphology, anatomy, and physiology, with emphasis on the higher plants. Horticultural implications. Lab stresses observations and manipulations of the particulars of plant life. Special fee. 2 rec/1 lab.

HT 215 - Soils and Land Use

Credits: 2.00

Introduction to soils with emphasis on physical, morphological, chemical, and biological characteristics and their applications in horticultural land use decisions. Includes soil genesis and classification and soil survey use. Special fee. 3 rec/1 lab/7 wks.

HT 217 - Soils and Plant Nutrition

Credits: 2.00

Role of nutrition in plant health care. Macro- and micro-nutrient needs, nutrition deficiency symptoms, soil testing, and fertilizer application techniques in both soil and soil-less media. Special fee. 3 rec/1 lab/7 wks.

HT 219 - Computers in Horticulture

Credits: 1.00

Selection and use of microcomputers in horticulture: word processing, spreadsheets, database management, Power Point, and graphics. 1 lec/1 lab.

HT 227A - Horticultural Facilities Management

Credits: 2.00

Layout, construction, management principles, and horticultural technique used on controlled growth structures, including greenhouses, cold frames, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities. Special fee. 1 lec/1 lab.

HT 227B - Horticultural Facilities Management

Credits: 2.00

Layout, construction, management principles, and horticultural technique used on controlled growth structures, including greenhouses, cold frames, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities. Special fee. 1 lec/1 lab.

HT 227C - Horticultural Facilities Management

Credits: 1.00

Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.

HT 227D - Horticultural Facilities Management

Credits: 1.00

Layout, systems, construction, management principles, and horticultural techniques used in controlled growth structures, including greenhouses, propagation houses and beds, cold frames, hoop houses, and lath houses. Includes practicum in daily operation of Thompson School horticultural facilities, with second-year focus on scheduling and supervision. 2 lab.

HT 234 - Pest Management

Credits: 4.00

Introduction to pests of horticultural plants, including diseases, insects, and weeds. Symptoms, morphology, identification, life cycles, impacts, and management measures. Emphasis on integrated pest management. Special fee. 3 lec./1 lab.

HT 240 - Introduction to Floral Design

Credits: 2.00

Basic arrangements, including symmetrical and asymmetrical, circular, triangular, and line pieces; and the basic corsage designs used by florists. Application of principles to designs during laboratory sessions. Special fee. 1 lec/1 lab.

HT 244 - Advanced Floral Design

Credits: 2.00

Color and its use; planning both wedding and sympathy floral pieces; comparing traditional and contemporary design techniques and materials; construction of bridal bouquets and other essential bridal designs, sympathy pieces and tropical/dried floral pieces during lab sessions. Prereq: HT 240 or permission. Special fee. 1 lec/1 lab.

HT 250 - Flower Show Design and Construction

Credits: 1.00

Design, construction, and maintenance of the Thompson School horticultural exhibit at a public flower show. May be repeated. Special fee. 1 rec.

HT 251 - Introduction to Design Communication

Credits: 2.00

Introduction to methods of communicating garden and landscape design. Lab work covers selected 2-D and 3-D tools and techniques, including instrumental drawing, modeling, and computer-aided drafting and design (CADD). Special fee. Prereq: TSAS 205, Computers in the Workplace. 1 lec/1 lab.

HT 254 - Irrigation Design

Credits: 3.00

Design, installation, and operation of irrigation systems in the greenhouse, nursery, field crops, and landscape. Special fee. 1 lec/1 lab.

HT 256 - Horticultural Pruning

Credits: 2.00

Basic pruning techniques for fruits and ornamentals: apples, peaches, raspberries, blueberries, grapes; deciduous and evergreen shrubs and trees; herbaceous materials. Prereq: HT 205 or equivalent. Special fee. 1 lec/1 lab.

HT 257 - Woody Landscape Plants

Credits: 3.00

Identification, morphology and classification of Woody Plant Materials of importance in ornamental horticulture in the Northeast including deciduous and evergreen trees, shrubs, vines and groundcovers. Woody plant selection for landscape situations. Special fee. Prereq: HT 205. 2 lec/1 lab.

HT 258 - Herbaceous Ornamental Plants

Credits: 2.00

A comprehensive study of herbaceous ornamental plants including morphology, classification, identification, and usage of common perennials, annuals, ferns, ornamental grasses, herbs, and bulbs used in the Northeast. Production, installation, and maintenance of herbaceous ornamentals is also included. Prereq: HT 205 or permission. Special fee. 1 lec/1 lab.

HT 260 - Grounds Maintenance

Credits: 2.00

Introduction to the principles and practices (i.e. weed identification/management, turf maintenance, pruning) of maintaining public and private grounds--residential, commercial, institutional, recreational. Special fee. 1 lec/1 lab.

HT 263 - Landscape Construction

Credits: 4.00

Materials and methods of landscape construction: grading and drainage, site preparation, transplanting, turf installation, pavements, walls, and retaining walls, wood structures. Introduction to construction drawings, specifications, estimating, and bidding. Special fee. Prereq: HT 205, 215. 4 lec.

HT 266 - Garden Design and Culture

Credits: 2.00

Design, installation, and maintenance of flower gardens in New England. Includes perennial, annual, herb, bulb, and combination gardens. Also covers business aspects of gardening, including estimating. Field trips. Coreq: HT 258. Special fee. 3 lec/1 lab/7 wks.

Co-requisites: HT 258

HT 270 - Grounds Management

Credits: 2.00

Grounds management with emphasis on field organization and project supervision. Special fee. Prereq: HT 260. 1 lec/4-hr. Lab/7 wks. May be repeated for a maximum of four (4) credits.

HT 272 - Landscape Design Studio

Credits: 4.00

Principles of residential and commercial landscape design: site analysis, spatial organization, graphics and drafting, use of landscape fixtures and plant materials, final plans and specifications, cost estimates. Special fee. Prereq: HT 257 and 263. 2 lec/4-hr lab.

HT 275 - Floricultural Crop Production

Credits: 2.00

Leading cut-flower crops, potted plants, and bulbous crops, including cultural requirements, crop timing,

harvesting procedures, distribution systems, and marketing principles. Special fee. Prereq: permission. 2 lec/1 lab.

HT 276 - Bedding Plant Production

Credits: 2.00

Bedding plant production, cultural requirements, crop timing, marketing principles. Includes common annuals, perennials, vegetables, and herbs of the Northeast. Field trips. Special fee. Prereq: permission. 3 lec/1 lab/7 wks.

HT 286 - Fruit and Vegetable Production

Credits: 3.00

Tree fruits (apple, pears, and peaches) small fruits (strawberries, raspberries, grapes and blueberries) and vegetables grown in New England will be covered. Information will emphasize the growing, maintenance and the marketing of fruits and vegetables from the garden center perspective. Special fee. 2 lec/1 lab.

HT 288 - Horticultural Business Management

Credits: 4.00

Business principles and practices in the formation, operation, and growth of horticultural enterprises. An introduction to marketing, accounting, personnel, and operation management. HT majors only. Special fee. 4 lec.

HT 291 - Studies

Credits: 1.00 to 3.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a new topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include floriculture, floral design, nursery, landscape, and horticultural therapy. Permission required. Course may be repeated up to a maximum of 6 credits.

HT 292 - Studies

Credits: 1.00 to 3.00

See description for HT 291.

HT 293 - Field Operations

Credits: 1.00 to 3.00

Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student's adviser.

HT 294 - Field Operations

Credits: 1.00 to 3.00

Seven-week or fourteen-week modules of field experience in selected areas of horticulture under the supervision of an appropriate member of the faculty/staff. A student may enroll in two modules per term. A) Floriculture; B) Floral Design; C) Nursery and Garden; D) Landscape; E) Horticultural Therapy. Special fee. Prereq: permission of instructor and student's adviser.

HT 297 - Horticultural Work Experience

Credits: 2.00

A guided work experience in a student-selected area of horticulture, providing both a broad overview and a detailed understanding of work in the field. Contracting with an employer for 480 hours of career-oriented

work, the student is assigned a wide variety of duties and responsibilities typical of that business or organization. Students maintain a detailed reflective journal of the experience, a portfolio-based summary report, and thorough self-evaluations. Cr/F.

Hospitality Management

HMGT 401 - Hospitality Industry: Historical Perspectives and Distinguished Lecture Series

Credits: 4.00

Review the broad spectrum of the hospitality industry from an historical perspective, in concert with current history, trends, and challenges presented by notable industry executives. Distinguished guests represent all segments of the hospitality industry plus selected allied support businesses. Industry segments include, but are not limited to, hotels and lodging, restaurant and food service, travel and tourism, conferences and conventions, casinos and gaming, clubs and resorts, health care and senior living, franchising and entrepreneurship, and technology support. Writing intensive.

HMGT 403 - Introduction to Food and Beverage Management

Credits: 4.00

Designed to introduce the student to the fundamental components of food and beverage production principles and to some basic management skills. The subject matter is presented through classroom lectures, interactive electronic instruction, guest lectures, and food production labs, including the Hospitality Management Department's Gourmet Dinner Program. Prereq: permission.

HMGT 404 - UHS Hospitality Practicum I

Credits: 1.00

Work Experience in the hospitality industry through University Hospitality Services; contributes toward Hospitality Management practicum requirement. Students complete at least 100 hours clock time on the job, keep a weekly diary, and write a final paper. Students responsible for arranging their own work experience. Restricted to first-year Hospitality Management majors. Course may be continued into the succeeding semester. Cr/F.

HMGT 504 - UHS Hospitality Practicum II

Credits: 1.00

Work Experience in the hospitality industry through University Hospitality Services; contributes toward Hospitality Management practicum requirement. Students complete at least 100 hours clock time on the job, keep a weekly diary, and write a final paper. Students responsible for arranging their own work experience. Restricted to sophomore Hospitality Management majors. Course may be continued into the succeeding semester. Cr/F.

HMGT 554 - Lodging Operations Management

Credits: 4.00

Focus on management history, planning, organizing, leadership, and current and future management issues. Requires students to compare rooms-division management in a large hotel with that of a small hotel, including reservations, front desk operations and accounting, housekeeping, and auxiliary functions. The complexities and the terminology of the design, management, and maintenance of physical structures used by civil engineers and architects are integral to the course. Guest lecturers include hotel general managers and department heads who highlight students' projects. Pre- or Coreq: HMGT 401.

HMGT 567 - Food and Beverage Operations Management

Credits: 4.00

Introduces the student to the basic elements of food and beverage management with a focus on front of the house operations. The subject matter is presented through lectures, guest speakers, certification training, the department's Gourmet Dinner program, and laboratory experiences. The laboratory activities are based at Acorns Restaurant in the New England Conference Center. Five certifications are achieved in

this course. Lab.

HMGT 595 - Internship I

Credits: 1.00 to 12.00

A nontraditional academic experience relating to work experience within the university system. Coordinated by a faculty member who provides supervision, along with an on-site supervisor, through regular class meetings. Includes academic assignments and a written report. May be repeated to a maximum of 12 credits. Prereq: permission and good academic standing. Cr/F.

HMGT 600 - Hospitality Marketing Management

Credits: 4.00

Students apply basic marketing principles to the competitive environment of service businesses, such as hotels, restaurants, and other hospitality firms. Strong emphasis on consumer behavior, services management theory, and the hospitality marketing mix as they relate to service firms of all types. Course material is presented through a variety of techniques: case studies, lectures, guest speakers, team projects, and written assignments. Pre- or Coreq: HMGT 401, 403, 554, 567. Writing intensive.

HMGT 618 - Uniform Systems for the Hospitality Industry

Credits: 4.00

Following a review of financial statements and an introduction to the Uniform System of Accounts for Hotels and Restaurants, students learn specific applications of managerial accounting and decision support systems for the hospitality industry. Topics include cash flow analysis, cost management, cost-volume-profit analysis, pricing models, budgeting, and forecasting. Students develop an understanding of computer software and back-and front-office computer systems as they relate specifically to the hospitality industry. Lectures, computer exercises, and papers. Prereq: ADMN 502.

HMGT 625 - Hospitality and Employment Law

Credits: 4.00

Tort and contract liability in the hospitality industry. Emphasizes a managerial approach to solving or avoiding potential problems including employment law issues that arise in any business environment: wrongful termination, compensation rules, affirmative action, employment discrimination, sexual harassment, and issues involving privacy in the workplace. Prereq: junior standing.

HMGT 635 - Hospitality Human Resource Management

Credits: 4.00

Addresses key hospitality resource management issues of a general, technical, and social nature including communication, motivation and leadership, job stress and safety, security, government regulations, discrimination, and substance abuse. Covers technical areas such as recruiting and selecting, placement, employment, training, performance appraisal, disciplining, and termination. Pre- or Coreq: ADMN 611. Writing intensive.

HMGT 655 - Hospitality Finance and Development

Credits: 4.00

Provides the advanced student with a familiarity of the principles and practices of development and acquisition of hotel, restaurant, and other hospitality businesses, and the real estate development process. Emphasizes market and financial evaluation and decision making relative to economic, ethical, legal, and social aspects of the organization's environment. Group projects involving the preparation of a complete economic feasibility study for hotel or restaurant development or acquisition or repositioning are required. Prereq: HMGT 600, 618. Pre- or Coreq: HMGT 603.

HMGT 661 - Meeting Planning Management

Credits: 4.00

Strategic and logistical considerations in managing the planning, development, marketing, and implementation of meetings, conventions, and events.

HMG 662 - Convention Sales and Service Management

Credits: 4.00

Provides students with an understanding of the sales and service management aspects of the international convention, exhibition and meeting industries. Analyze the market potential of convention centers, resort hotels, convention hotels and independent venues. Consider the strategic and logistical aspects of the planning, development, coordination and execution of conventions, exhibitions and meetings. Use case studies to examine American and overseas properties. Introduction to and certification in numerous aspects of the DELPHI software system.

HMG 667 - Adv Food/Bev Operations Mgt

Credits: 4.00

A project management course integrating management principles and techniques in the presentation of large scale gourmet dinners. Examines services operations management: planning and forecasting, marketing and sales, production delivery systems, service encounters, technology, purchasing and inventory management, human resources, scheduling, productivity and quality issues. Prereq: HMG 401, 403, 554, 567. Pre- or Co-requisite: HMG 618.

Co-requisites:

HMG 670 - International Food and Culture

Credits: 4.00

This course will focus on the importance of location in the production, distribution and consumption of food, inter-related with the hospitality management industry. The role of where we come from is critical in understanding why we eat, and where we eat it. For most people of the world, food is tied to group identity (religion, culture), but globalization, migration, commoditization of culture, is tied to group identity (religion, culture), but globalization, migration, commoditization of culture, environmental sustainability, and technological innovations have confused the relationship with food.

HMG 681 - Resort and Spa Management

Credits: 4.00

Complexities of developing and managing various types of resort properties. Emphasis on time-share properties and recreation elements of full service resorts. Writing intensive.

HMG 682 - Private Club Management

Credits: 4.00

Examines the effective operation and management of private clubs including city clubs, country clubs and yacht clubs. Major topics include: the unique niche that clubs represent in the hospitality industry, the general manager/COO concept, organizational structure of clubs, role of the board of directors, membership requirements, differences between tax-exempt clubs and non-exempt clubs, duties and responsibilities of department heads in private clubs, government regulation, preparing for a career in the club field, trends in club management and the future of clubs.

HMG 685 - Study Abroad

Credits: 1.00 to 16.00

Open to students studying abroad in the discipline as approved by the hospitality management program director. Cr/F.

HMG 686 - Study Abroad

Credits: 1.00 to 16.00

Open to students studying abroad in the discipline as approved by the hospitality management program

director. Special fee. Cr/F.

HMG 695 - Independent Analysis

Credits: 2.00 to 12.00

Study and research project for honor students to advance knowledge in lodging and food services fields. Prereq: junior standing and permission.

HMG 695W - Independent Analysis

Credits: 2.00 to 12.00

See description for HMG 695. Writing intensive.

HMG 696 - Supervised Student Teaching Experience

Credits: 1.00 to 8.00

Participants are expected to perform such functions as attending classes, leading discussion groups, assisting faculty, presenting information in undergraduate courses that they have successfully completed, holding office hours, grading papers and exams. Enrollment is limited to juniors and seniors who have had above average GPAs. May be repeated to a maximum of 8 credits. Prereq: permission of instructor, program director, and director of advising. Cr/F

HMG 698 - Topics

Credits: 1.00 to 4.00

Special topics and developments in lodging, food services, and other hospitality industries. Prereq: junior standing and permission. Course may be repeated when topics change up to a maximum of 8 credits.

HMG 703 - Strategic Management in the Hospitality Industry

Credits: 4.00

Capstone course, interrelating and applying strategic management concepts to hospitality organizations. Cases from hotel companies, restaurant chains, and other hospitality-related businesses, supplemented by economic and other published information from the industry, are used as departure points for class discussion. Prereq: senior standing. Writing intensive.

HMG 750 - Senior Operations Seminar

Credits: 4.00

Allows students to experience and participate in the planning and decision-making process of a full-service hotel; to contribute to and understand the intricacies of managing change while gaining a sensitivity to interdepartmental coordination. Class meets at major metropolitan hotels. Prereq: permission.

HMG 756 - International Franchising

Credits: 4.00

Designed to help the student acquire an understanding of franchising as a system of distribution and business expansion. Franchising is studied from both the perspectives of the franchisee and the franchiser. In addition, economic, financial, and legal issues associated with franchising are covered. By the end of the course, students acquire the skills and sources of information that would permit sound assessment of the business opportunities available in franchising. Prereq: MKTG 651 or HMG 600. (Also offered as MKTG 756.)

HMG 771 - Beverage Management/International Wines

Credits: 4.00

Examination of purchasing, evaluation, storage, service, and control of alcoholic beverages. Emphasizes wines, although beer, ale, distilled spirits, liqueurs, and mixed drinks are examined. Enrolled students must be at least 21 years old. Prereq: permission.

HMG 777 - Casino Management**Credits:** 4.00

History, development and management of casinos and gaming. Emphasizes environment, operations, regulation, accounting, auditing and taxation of casinos and gaming. Investigates the economics, moral and cultural issues of gaming. Field trip required. Enrolled students must be at least 21 years old. Prereq: permission.

HMG 795 - Internship II**Credits:** 1.00 to 12.00

Off-campus work in the hospitality industry for on-the-job skill development. Normally supervision is provided by a qualified individual in the organization with frequent consultation by a hotel program faculty sponsor. A written report is required of the student. Internships may be part-time or full-time, with course credits assigned accordingly. May be repeated to a maximum of 12 credits. Prereq: permission and good academic standing; junior and senior students only. Cr/F.

HMG 799 - Honors Thesis/Project**Credits:** 4.00 to 8.00

Supervised research leading to the completion of an honors thesis or project; required for graduation from the honors program in hospitality management. Prereq: permission of director of undergraduate programs and department chair. Writing intensive.

Humanities

HUMA 401 - Introduction to the Humanities

Credits: 4.00

Introduction to the interdisciplinary study of the humanities. Taking as its entry point a significant work, the course is organized by topics related to that work, selected and arranged to invoke lively intellectual debate among faculty and students alike. Group lectures by the three core humanities faculty members. The instructors teaching the course will provide material for smaller weekly discussion sections led by each of those faculty members. Requirements include lively discussions, papers, and examinations.

HUMA 401W - Introduction to Humanities

Credits: 4.00

See description for HUMA 401. Writing intensive.

HUMA 411 - Humanities I

Credits: 4.00

Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from classical Greece through the Renaissance through readings, films, slides, and field trips. Special fee. Writing intensive.

HUMA 412 - Humanities II

Credits: 4.00

Introduction to the humanities and Western culture through literature, history, philosophy, music, art, and architecture. Examination of selected historical periods from the Enlightenment to the present through the use of readings, films, slides, and field trips. Writing intensive.

HUMA 444 - Idea of University

Credits: 4.00

An inquiry course that introduces first-year students to the history of the university and to the philosophical, artistic, and political crises it has undergone and continues to undergo today. HUMA 444 is an interdisciplinary course, team-taught by three professors from different fields. Writing intensive.

HUMA 444A - Everlasting Fame: The Hero in Literature, Film, and Popular Culture

Credits: 4.00

An interdisciplinary introductory seminar designed for first-year students. Course uses an inquiry-guided approach to examine the concept of the hero and the heroic life through a variety of media. How do we define a hero? What are the common characteristics inherent in the heroic life? How has the idea of the hero evolved over time? Do we share a common definition of the hero? What criteria are essential to the heroic life? What does it mean to be a hero today? Students will explore possible answers to these questions through an examination of primary texts from ancient Indo-European myths to Celtic sagas, articles from historical, anthropological, and literary sources, and popular culture.

HUMA 444B - Richard Wright's Native Son and the American 1930s and 1940s

Credits: 4.00

This inquiry course uses Richard Wright's groundbreaking novel, *Native Son*, to explore ways in which literature can reflect, interact with, and change the world out of which it arises. After a careful reading of the novel, we consider how a writer's comments on his art can help us understand the art, how a novel's composition and reception affect our understanding, how the historical context of a work can help us reflect upon the relationship of literature and history, how other media such as film versions of the novel interpret

it, and how social and philosophical interpretations of experience are reflected in the narrative.

HUMA 500 - Critical Methods in the Humanities

Credits: 4.00

Critical analysis of works in the humanities. Focuses on major texts, evaluation of secondary literature, research writing, criticism. Required of all HUMA majors. Writing intensive.

HUMA 510 - Ancient World: An Interdisciplinary Introduction

Credits: 4.00

What is a human being? How should we explain or understand what happens to us? How ought we to live? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science of ancient Greece and Rome. Writing intensive.

HUMA 510A - Ancient World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 510. Writing intensive.

HUMA 510B - Ancient World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 510. Writing intensive.

HUMA 510C - Ancient World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 510. Writing intensive.

HUMA 510D - Ancient World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 510. Writing intensive.

HUMA 511 - Medieval World: An Interdisciplinary Introduction

Credits: 4.00

What is the soul and how is its health related to temptation and also to specifically Christian virtues? How closely does the medieval definition of an eternal God determine good and evil in daily life? To what extent does the hope of immortality affect the practice of writing literature, making art, studying philosophy, and investigating science? This team-taught course examines these important questions by focusing on the literature, art, philosophy, and science from the collapse of the classical world to the rise of capitalism. Writing intensive

HUMA 511A - Medieval World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 511. Writing intensive.

HUMA 511B - Medieval World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 511. Writing intensive.

HUMA 511C - Medieval World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 511. Writing intensive.

HUMA 511D - Medieval World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 511. Writing intensive.

HUMA 512 - Renaissance and Early Modern: An Interdisciplinary Introduction

Credits: 4.00

Explores the interrelationship of art, literature, philosophy, and science from the High Renaissance into the 18th century. Study of the works and ideas of such influential figures as Shakespeare and Milton, Raphael and Rembrandt, Galileo, Descartes, Newton, and Hume. Writing intensive.

HUMA 512A - Renaissance and Early Modern: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 512. Writing intensive.

HUMA 512B - Renaissance and Early Modern: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 512. Writing intensive.

HUMA 512C - Renaissance and Early Modern: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 512. Writing intensive.

HUMA 512D - Renaissance and Early Modern: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 512. Writing intensive.

HUMA 513 - Modern World: An Interdisciplinary Introduction

Credits: 4.00

Explores the central paradoxes of our culture in the modern age. Is there such a thing as "progress" and if so what is its nature? What is the relation of conscious and unconscious? Is the contemporary world devoid of meaning? Questions such as these are examined in relation to works since the 18th century in the fields of literature, history of science, philosophy, and art. Writing intensive.

HUMA 513A - Modern World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 513. Writing intensive.

HUMA 513B - Modern World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 513. Writing intensive.

HUMA 513C - Modern World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 513. Writing intensive.

HUMA 513D - Modern World: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 513. Writing intensive.

HUMA 514 - 20th Century, 1900-1945: An Interdisciplinary Introduction

Credits: 4.00

This course examines the relationships of literature, art, philosophy, and science in the first half of the twentieth century. Topics include the rise of modernism in literature and the arts, the distinctive themes of 20th century philosophy, and crucial innovations in the sciences. Students study the works of such figures as Picasso, Woolf, Einstein, Freud, and Wittgenstein.

HUMA 514A - 20th Century, 1900-1945: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 514. Writing intensive.

HUMA 514B - 20th Century, 1900-1945: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 514. Writing intensive.

HUMA 514C - 20th Century, 1900-1945: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 514. Writing intensive.

HUMA 514D - 20th Century, 1900-1945: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 514. Writing intensive.

HUMA 515 - 20th Century, 1945-1999: An Interdisciplinary Introduction

Credits: 4.00

Examines the relationships of literature, art, philosophy, and science since the middle of the twentieth century. Topics include the philosophical and literary implications of the Holocaust and nuclear weapons, movements in the arts and literature since World War II, the rise of the sciences of life and information, and postmodernism. Students study the works of such figures as Arendt, Turing, Beckett, and Pollock.

HUMA 515A - 20th Century, 1945-1999: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 515. Writing intensive.

HUMA 515B - 20th Century, 1945-1999: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 515. Writing intensive.

HUMA 515C - 20th Century, 1945-1999: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 515. Writing intensive.

HUMA 515D - 20th Century, 1945-1999: An Interdisciplinary Introduction

Credits: 4.00

See description for HUMA 515. Writing intensive.

HUMA 519 - Classical Greece

Credits: 4.00

Examination of the culture of classical Greece through the history, drama, philosophy, and art of the period. Open to all students. Recommended for students in the humanities major. Special fee.

HUMA 592 - Special Topics in the Humanities

Credits: 2.00 to 8.00

Special topics; offered occasionally. May be repeated up to a maximum of 12 credits.

HUMA 608 - Arts and American Society: Women Writers and Artists, 1850-Present

Credits: 4.00

Team-taught course studying the impact of gender definitions on the lives and works of selected American artists. Considers lesser-known figures such as Fannie Fern, Lilly Martin Spencer, and Mary Hallock Foote as well as better-known artists such as Willa Cather and Georgia O'Keeffe. Prereq: permission or one of

the following: WS 401, HIST 566, ENGL 585 or 586, ENGL 685 or 785, or a 600-level art history course. (Also offered as ARTS 608, ENGL 608, and HIST 608.) Writing intensive.

HUMA 609 - Ethnicity in America: The Black Experience in the 20th Century

Credits: 4.00

Team-taught course investigating music, literature, and social history of black America in the period of the Harlem Renaissance, the Great Depression, World War II, and in the 1960s. Special attention to the theme of accommodation with, and rejection of, dominant white culture. (Also offered as AMST 609, ENGL 609.) Writing Intensive.

HUMA 610 - Regional Studies in America: New England Culture in Changing Times

Credits: 4.00

Team-taught course investigating some of the major contributions New England has made to American life. Focusing on three periods: the Puritan era, 1620-90; the Transcendental period, 1830-60; and the period of emerging industrialism in the late 19th century. Prereq: second-semester sophomore. (Also offered as AMST 610, ARTS 610, ENGL 610, and HIST 610.) Not for art studio major credit. Writing intensive.

HUMA 622 - Studies of Freedom and Liberty

Credits: 4.00

Principles of freedom and liberty that helped to form Western culture from the Renaissance to the present. Topics include concepts of human nature, theories of government and society. Readings include Machiavelli, Locke, Paine, Mill, Marx, Freud, Sartre, and Marcuse.

HUMA 630 - Development of Early Christianity

Credits: 4.00

Examines the emergence of Western Christianity. Explores primary literature relating to religious concepts and theological positions during the first centuries of the Church from the Pauline letters, through the period of Roman Emperor Constantine, culminating in the writings of Augustine, Bishop of Hippo. Considers both Christian and non-Christian texts and assesses the forces that helped to shape the fledgling religion. Gives special attention to social, political, and cultural influences.

HUMA 640 - Birth of Rock and Roll

Credits: 4.00

An interdisciplinary study of the cultural forces that brought the birth of rock and roll in the 1950's. This study of pre-rock music and culture will be further enriched by art, literature, and photography which focuses on the roots of rock and roll. Writing intensive.

HUMA 650 - Humanities and the Law: The Problem of Justice in Western Civilization

Credits: 4.00

Interdisciplinary modular course examines interpretations of the nature of justice, its origins, the role of the professional judiciary, and the relationship of law and ethics. Students take three successive five-week modules during the semester. (Not offered every year.) Writing intensive.

HUMA 651 - Humanities and Science: The Nature of Scientific Creativity

Credits: 4.00

Interdisciplinary modular course examines the historical and intellectual foundations of the physical, biological, and human sciences. Students take three successive five-week modules during the semester. (Not offered every year.) Writing intensive.

HUMA 680 - New England Culture: Roots and Branches

Credits: 4.00

Interdisciplinary examination of the richness, variety, and significance of selective periods of New England

culture using literature, history, art and photographic images, music, artifacts, and oral histories. Subjects include Native American lore, European American contributions to regional culture, New England's literary tradition and influence on American culture.

HUMA 698 - Independent Study

Credits: 4.00

Independent study open only to highly qualified juniors and seniors who have completed at least four humanities courses above the 400 level. Requires original research and substantial writing projects under the direction of a member of the core faculty of the humanities. Prereq: HUMA junior or senior majors; four HUMA courses above the 400 level.

HUMA 700 - Seminar

Credits: 4.00

Provides an opportunity for in-depth reading, viewing, and/or listening to texts and artifacts. Emphasis on the multiple perspectives and methodologies that can be brought to bear upon these works from several humanistic disciplines. May be repeated for credit. Writing intensive.

HUMA 730 - Special Studies

Credits: 4.00

Selected topics not covered by existing courses, with subjects to vary. May be repeated for credit. Prereq: one 400- or 500-level HUMA course or junior standing. Writing intensive.

HUMA 795 - Study of Creativity

Credits: 4.00

A study of human creativity through representative lives and works of such figures as daVinci, Einstein, Kathe Kollwitz, Bach, Dickens, and Freud. Lectures, class discussions, films, and slides supplemented by gallery tours plays, and concerts. Open to students with a background in humanities or by permission of the instructor. Special fee. (Normally offered every other year.) Writing intensive.

HUMA 796 - Study of Contemporary Issues

Credits: 4.00

Current social and political issues with focus on recent developments in public policy, science, and business, and their impact of social values. Prereq: junior status or permission. (Normally offered every other year.) Writing intensive.

HUMA 798 - Research Seminar

Credits: 1.00

Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Prereq: senior standing; permission. Writing intensive.

HUMA 799 - Research Seminar

Credits: 3.00

Provides a context within which students may discuss and receive direction in the course of completing a major research paper. At the end of the seminar, students present their research to the faculty and their fellow students. Restricted to majors. Prereq: HUMA 798; senior standing; permission. Writing intensive.

Information Technology

IT 502 - Intermediate Web Design

Credits: 4.00

An intermediate level exploration of the theory and practice of Web design. Students learn the fundamentals of design theory applicable to the World Wide Web and examine tools and techniques for applying that knowledge to their projects. Additional topics include information architecture, usability, accessibility, optimization, typography, and market visibility. Working knowledge of XHTML and CSS required. Prereq: CS 403.

IT 505 - Database Programming

Credits: 4.00

Introduces database programming in the microcomputer environment. Students use a procedural programming language such as Visual Basic to manipulate data managed by a database management system. Emphasis is on the relational database model. Topics include connections, queries (including use of SQL), relations, constraints, transaction processing, concurrency issues, exception handling, and report generation. Prereq: a programming course.

IT 506 - Intermediate Applications Programming with Visual Basic

Credits: 4.00

Introduction to advanced Visual Basic data structures, focusing on the language's object oriented features. Topics include the creation of programmer-defined classes and objects, collections, user controls, exception handling, regular expressions, database programming, and Web forms. Prereq: CS 405.

IT 520 - Computer Architecture

Credits: 4.00

Fundamentals of computer organization, including binary systems, data representation (and compression), machine language, program execution, memory and process issues. Operating systems and networking basics. Prereq: CS 415 or CS 405.

IT 600 - Internship

Credits: 1.00

Provides opportunity to apply academic experience in settings associated with future professional employment. A written proposal for the internship must be approved by the instructor. The proposal must specify what the student will learn from the internship, why the student is properly prepared for the internship, and what supervision will be available during the internship. A mid-semester report and a final report are required. Prereq: permission. May be repeated up to a maximum of 4 credits. Cr/F.

IT 604 - Intermediate Web Development

Credits: 4.00

An intermediate-level examination of the theory and practice of developing applications for the World Wide Web. Students will learn practical techniques for designing and implementing Web applications, with a particular emphasis on server-side processing and data-driven Web sites. Working knowledge of XHTML, CSS, and some programming language is required. Prereq: CS 403 and programming course.

IT 609 - Network/Systems Administration

Credits: 4.00

Introduces the central issues in administration of a networked computer system. Topics include the client-server model (including support of mail, FTP, Telnet, the Web), disk and file systems, backup and

recovery, and security. Privacy and other legal/social issues will be discussed. Prereq: CS 402 or IT 520 and a programming course, or permission of the instructor.

IT 666 - Computer Security

Credits: 4.00

Provides students with the skills required to recognize and diagnose potential security issues in computer and network systems. Through readings, case studies, exercises, research papers, exams and personal experience, students will discuss and debate security policies and legislation, system procedures, security tools and techniques and the patterns that attackers use to foil security systems. Other topics include types of attacks, viruses, intrusion detection and tracking, firewalls, trust relationships and authentication, secure connections, and cryptography. At the conclusion of the course, student will have a heightened sense of security in the actions they take when using and maintaining computer systems. Prereq: CS 402 or IT 520 or permission of the instructor. No credit if credit earned for CIS 615.

IT 696 - Independent Study

Credits: 1.00 to 6.00

Individual projects developed and conducted under the supervision of a faculty member. Prereq: permission of faculty supervisor and department chairperson. May be repeated.

IT 771 - Web Programming Languages

Credits: 4.00

In this course, you will learn languages to program the Web. Languages integrated into browsers, like JavaScript, and languages invoked on the server, like Ruby. You will also learn about frameworks, like Rails, and various techniques used to support the programming process. In addition, you will learn languages you will need to create, modify and process Web documents. Prereq: IT 520, IT 604.

IT 780 - Topics in Information Technology

Credits: 4.00

Material not normally covered in course offerings. May be repeated for credit.

Intercollege

INCO 400 - Graduate Preparation Seminar

Credits: 1.00

A survey seminar that explores issues related to graduate school preparation. Topics include graduate school culture, academic research, the role of multicultural scholars, faculty relations, the graduate record exam, resume/vita development, and financing graduate education. Prereq: Enrollment in McNair Scholars Program. May be repeated for credit. Cr/F.

INCO #401 - War

Credits: 4.00

Nature and experience of modern warfare and its historical development; social and biological roots of war; national security and defense concepts and issues; the nuclear age and weapons of mass destruction; the post-Cold War age; philosophical issues. Writing intensive.

INCO 402 - Peace

Credits: 4.00

Investigates (1) military deterrence in theory and practice; (2) alternatives to military deterrence such as diplomacy, international law, and conflict resolution, and nonviolent defense; (3) economic and environmental interdependence of nations; and (4) political, cultural, ethical, and religious conceptions of peace.

INCO 402H - Honors/Peace

Credits: 4.00

See description for INCO 402.

INCO 403 - Healthcare Professions Seminar

Credits: 2.00

This seminar is designed for students (primarily first year primarily first year undergraduates, but to include any others) who are in the initial phase of preparation to a career in allopathic or osteopathic medicine, dentistry, podiatry, optometry, physicians assistant, chiropractics, physical therapy, pharmacy, or naturopathic medicine. Through readings and discussion students will become informed about current topics in healthcare, and specifically about these professions, requirements for admission to degree programs, and about how to become a competitive applicant. Cr/F.

INCO 410 - Introduction to College Teaching

Credits: 2.00

Evolving role and function of colleges and universities in American higher education. Issues involving the professorate including teaching, scholarship and service as the framework for an academic career.

INCO 430 - Interdisciplinary Science

Credits: 4.00

Advanced topics in selected areas of science through interdisciplinary lectures, demonstrations, hands-on laboratory experience, and field trips; the use of mathematical and computer skills in science; social, economic, environmental, and ethical applications and implications of recent advances in the selected area of science; the process of research. Restricted to high school juniors and seniors by permission only.

INCO 444H - Honors/The Faust Legend

Credits: 4.00

This course traces the Faust legend from its earliest known manifestation in the 10th Century over the course of 10 centuries to the middle of the 20th Century. The narrative theme of giving up one's integrity for the sake of power or pleasure or knowledge or all three is central in Western European civilization.

INCO 450 - Introduction to Race, Culture and Power

Credits: 4.00

Explores the ways in which the concept of "race" serves to justify global relationships of domination and inequality and is embedded in U.S. society. Examines how dominant powers use "culture" to maintain subordination and how subordinated peoples use "culture" to resist exploitation. (Also listed as ANTH 450.)

INCO #480 - Arts in Society

Credits: 4.00

Brings students into relationship with classical visual and performing arts. Students attend lectures about the arts and live performances of music, theatre, and dance; take trips to visit museums; and view architecture. Students read relevant materials and write about each art work experienced. Special fee.

INCO 501 - Introduction to the Research Process

Credits: 2.00

A) biological sciences; B) humanities; C) physical sciences; D) social sciences; E) thematic/interdisciplinary. Examines how scholars ask questions and what methods they employ to gain answers. Cumulative GPA of 3.0 required. Permission. Cr/F.

INCO 501H - Honors/Introduction to the Research Process

Credits: 2.00

See description for INCO 501.

INCO 510 - McNair Introduction Seminar

Credits: 1.00 to 2.00

Course assists newly inducted student scholars in understanding the requirements of participation. Substantive reading and writing on the life of Dr. Ron McNair as the starting point from which to understand program expectations and begin sketching research and graduate school goals. Prereq: Enrollment in McNair Scholars Program and permission. Cr/F.

INCO 529 - Writing Consultation

Credits: 2.00

Includes instruction in philosophy and techniques of tutoring, theoretical and practical issues in collaborative learning and complex-skill formation, and cross disciplinary conventions of writing. In addition to the classroom portion of course, each student undertakes a supervised practicum experience in the University Writing Center. Permission required. Cr/F.

INCO 530 - Writing Consultation Across the Curriculum

Credits: 2.00

This course provides the fundamental background for peer writing consultation serving as Writing Fellows in courses across the curriculum. Emphasis is on the application of theoretical assumptions about writing, tutoring, and discipline-specific discourse. Restricted to members of the Writing Fellows Program. Faculty recommendation required. May be repeated for credit. Prereq: ENGL 401, one other Writing intensive course.

INCO 555 - Peer Education

Credits: 1.00 to 3.00

Students serve as co-instructors for a section of INCO 444, First Year Seminar. Under the supervision of the course coordinator and their co-instructor (a University faculty member or Student Affairs professional),

they prepare and present materials and exercises for their section. With their co-instructor, they also grade written and other exercises. Students attend weekly meetings with their section co-instructor and biweekly meetings of all section instructors. They also attend a two day workshop on teaching and course facilitation prior to the semester and a one day workshop at the end of the semester. Prereq: permission. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 585 - Foreign Exchange

Credits: 1.00 to 16.00

Juniors and seniors may spend a semester or year in Canada at one of eleven colleges and universities in Nova Scotia or one of eighteen participating institutions in Quebec. Possible disciplines include public relations, hospitality management, and computer science. Eligibility requirements include U.S. citizenship, junior or senior standing, and good academic achievement. For more information contact the Center for International Education. Cr/F.

INCO 586 - Foreign Exchange

Credits: 1.00 to 16.00

See description for INCO 585. Cr/F.

INCO 590 - Student Research Experience

Credits: 1.00 to 4.00

Provides hands-on research experience to develop critical thinking, problem solving, and analytical skills. An entry-level research experience that introduces students to research theories, tools, and ethical issues. Each student completes a contract with a faculty mentor identifying the research activities the student will undertake. May be repeated up to a maximum of 8 credits.

INCO 595 - Winterim Topics

Credits: 1.00 to 4.00

Concentrated interdisciplinary exposure to a particular culture or locale off campus during the winter term. Includes anthropological, artistic, biological, cultural, environmental, or geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to a maximum of 8 credits.

INCO 595W - Winterim Topics

Credits: 1.00 to 4.00

Concentrated interdisciplinary exposure to a particular culture or locale off campus during the winter term. Includes anthropological, artistic, biological, cultural, environmental, or geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to a maximum of 8 credits. Writing intensive.

INCO 596 - Summer Topics

Credits: 1.00 to 4.00

Provides a concentrated interdisciplinary exposure to a particular culture or locale off campus during the summer session. Includes anthropological, artistic, biological, cultural, environmental, geographical, historical, political, sociological, and other aspects of a culture, country or locale. May be repeated to 8 credits.

INCO 604H - Honors Senior Thesis

Credits: 4.00 or 8.00

Final requirement for graduation with University Honors. Intended for honors students in majors that do not offer honors work. Open by special permission to other honors students. May be repeated for a maximum of 8 credits. IA (continuous grading). Writing intensive.

INCO 610 - Research Inquiry Seminar

Credits: 2.00 to 6.00

With the notion of understanding self as the basis for investigating the world, this seminar focuses on exploring elementary concepts of academic research. Students are engaged in identifying strengths, discovering their passions, discerning the joys and frustrations of research, and developing a sketch of a research project. Prereq: Enrollment in McNair Scholars Program and permission. Cr/F.

INCO 650 - Study Abroad Seminar: Encountering Oneself/Encountering the World

Credits: 1.00

This seminar, which meets during the second half of each semester, seeks to prepare outgoing students for the Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on cultural adaptation, cross-cultural communication, practical skills for international living, and especially the implications of global perspectives on a student's major field(s) of study. Students are strongly encouraged to take INCO 651: Studying Abroad/Returning Home in the first half of the semester in which they return to UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 650H - Honors/Encountering Oneself/Encountering the World

Credits: 1.00

See description for INCO 650.

INCO 651 - Study Abroad Seminar: Returning Home

Credits: 1.00

This seminar, which meets during the first half of each semester, offers returning students an opportunity to reflect on their Study Abroad experience. The course specifically engages the ways in which the international experience affects personal, academic, and career perspectives. Readings, discussions, and short written assignments will focus on the experience of re-entry: cultural (re)adaptation, cross-cultural communication, and especially the implications of global perspectives on a student's major field(s) of study. Students should expect to have taken INCO 650: Encountering Oneself/Encountering the World in the second half of the semester before they left UNH. Permission required. May be repeated up to a maximum of 3 credits. Cr/F.

INCO 651H - Honors/Study Abroad Seminar/Returning Home

Credits: 1.00

See description for INCO 651.

INCO 685 - Study Abroad

Credits: 4.00 to 16.00

Enables students to pursue a semester, summer, or an academic year of foreign study in programs other than those offered by UNH. Students must provide the University Committee on Study Abroad with detailed information about the curriculum and must receive approval from that committee before registration. Credit awarded only upon successful completion of the course of study and after receipt by the committee of an official transcript. Interested students should consult the Center for International Education. Prereq: permission. Special fee. (Financial aid requires a minimum of 6 credits.) Cr/F.

INCO 686 - Study Abroad

Credits: 4.00 to 16.00

See description for INCO 685. Cr/F.

INCO 698 - Summer Research Project

Credits: 8.00

Guided independent research or student/faculty collaborative research. Open to recipients of summer

undergraduate research fellowships or by permission of the Undergraduate Research Opportunities Program. (Summer only.) Cr/F.

INCO 699 - McNair Summer Internship

Credits:

McNair Fellows; not graded; Summer only.

INCO 710 - Introduction to McNair Research

Credits: 2.00 to 4.00

An Introduction to methods and techniques of research design within the social sciences, mathematics and natural sciences, and the humanities. Concepts are tailored to students' research thesis. Students design and construct a research project (execution of project may be allowed for additional credit). A comprehensive written proposal is required. Prereq: Enrollment in McNair Scholars Program. May be repeated up to a maximum of 8 credits.

INCO 720 - McNair Research Experience

Credits: 2.00 to 4.00

This independent study course allows students to work one-on-one with a faculty scholar to execute the research project. The course also provides a forum for faculty mentors and research supervisors to troubleshoot challenges and assist in the completion of the project. Prereq: Enrollment in McNair Scholars Program. Permission required.

INCO 730 - Writing Consultation Across the Curriculum

Credits: 2.00

This course provides the fundamental background for peer serving as Writing Fellows in courses across the curriculum. Emphasis is on the application of theoretical assumptions about writing, tutoring, and discipline-specific discourse. Restricted to members of the Writing Fellows Program. Faculty recommendation required. May be repeated for credit. Students will be asked to evaluate their discipline-specific writing experience and apply it to their Writing Fellows' work. Prereq: ENGL 401, one other Writing intensive course.

INCO 796 - Touching the Limits of Knowledge: Cosmology and Our View of the World

Credits: 1.00

A seminar analyzing the paradoxes and limits of scientific knowledge and religious understanding, their compatibility or lack of it with respect to contemporary cosmology.

International Affairs

IA 401 - International Perspectives: Science, Business, and Politics

Credits: 4.00

Examination of the interaction of developments in science, economics, and politics as they shape international affairs. Topics include science and technology; world trade and investment; politics, cultural values, and ethics in world affairs. Team-taught, modular course. Prereq: permission; IA major. Writing intensive.

IA 501 - Global Issues in International Affairs

Credits: 4.00

Introduce students to the various relationships among peoples, states, and cultures within a global environment. While built upon the general knowledge acquired in IA 401, IA 501 provides more in-depth study of particular issues involving a variety of regions of the globe. This course is essential to preparing students for study abroad and to equip them to conceptualize suitable research topics for IA 701. Each student will be expected to put substantial time into developing the reading, research, and analytical skills necessary for the study of international affairs. Prereq: IA 401. Writing intensive.

IA 599 - Special Topics

Credits: 4.00

Subjects vary. Course descriptions are available at the Center for International Education. Some semesters, this course will satisfy specific requirements for the dual major in international affairs. For specific information in a particular semester, contact the Center for International Education.

IA 695 - Internship

Credits: 2.00 to 4.00

Designed to provide research and work opportunities with an international aspect to UNH undergraduates. Internships may involve either research with a faculty member or work with an employer. Prereq: permission. May be repeated up to 8 credit hours. Cr/F.

IA 699 - Topics

Credits: 4.00

Special topics course with varying subject matter and format. Study of areas and subjects not covered by existing courses. Center for International Education provides information on current offerings. Recommended as a dual major elective.

IA 701 - Seminar

Credits: 4.00

Capstone of the dual major in international affairs. To be taken after completion of the foreign language and foreign experience requirements. Strong emphasis on research and analysis, use of foreign language skills, writing, and criticism. Prereq: IA 501; IA major. Writing intensive.

Italian

ITAL 401 - Elementary Italian I

Credits: 4.00

For students without previous training in Italian. Aural comprehension, speaking, writing, reading. Labs. (No credit for students who have had two or more years of Italian in secondary school; however, any such students whose studies of Italian have been interrupted for seven years should consult the section coordinator about possibly receiving credit.) Special fee.

ITAL 402 - Elementary Italian II

Credits: 4.00

See description for ITAL 401.

ITAL 425 - Introduction to Italian Studies

Credits: 4.00

Designed for students interested in exploring Italian language and culture. Culture learning by means of guest speakers and visuals. Prepares for ITAL 401-402. Taught in English. Does not satisfy foreign language proficiency requirement. Special fee. (Offered summers only, Not offered every summer.) Writing intensive.

ITAL 500 - Selected Topics in World Literature

Credits: 4.00

Topics will be chosen which introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, PORT 500, RUSS 500, SPAN 500.) May be repeated for credit. Credit/Fail. Writing intensive.

ITAL 503 - Intermediate Italian I

Credits: 4.00

A complete review of the fundamentals of grammar and syntax. Selected readings as a general introduction to Italian civilization and culture. Labs and films. Special fee. Writing intensive.

ITAL 504 - Intermediate Italian II

Credits: 4.00

See description for ITAL 503. Writing intensive.

ITAL 521 - Italian Literature in Translation, 13th-16th Centuries

Credits: 4.00

Major works of fiction and nonfiction, reflecting ideas and taste during the first three centuries of Italian history. Readings, discussions, papers in English. No more than one course in English may be counted toward the minor. Special fee. (Not offered every year.) Writing intensive.

ITAL 522 - Italian Literature in Translation, 18th-20th Centuries

Credits: 4.00

Major trends in post-Renaissance thought and culture in Italy. Readings, discussions, papers in English. No more one course in English may be counted toward the minor. Special fee. (Not offered every year.) Writing intensive.

ITAL 525 - Italian Cinema

Credits: 4.00

Acquaints students with major Italian film texts. Through cinema the course explores the culture, society,

history, and politics of Italy. Students examine filmmakers, genres, periods, and movements. The course is conducted in English. Special fee.

ITAL 595 - Practicum

Credits: 2.00

Practical use of Italian language and culture through special projects outside the classroom. May be repeated for a maximum of 4 credits. Prereq: permission. Cr/F.

ITAL 595A - Practicum

Credits: 2.00 or 4.00

Practical use of Italian language and culture through special projects outside of the classroom. The Practicum consists of unpaid placement in an approved business, social service, or educational organization in an Italian-speaking context with on-site supervision. The course also includes a classroom component that incorporates readings and assignments pertinent to the Practicum experience. May be repeated for a maximum of 4 credits. permission. Letter Grade.

ITAL 631 - Advanced Conversation and Composition I

Credits: 4.00

Rapid review of basic grammatical structures and in-depth study of more complex linguistic patterns. Vocabulary building. Frequent written compositions and oral presentations using materials on contemporary culture taken from the various media. Phonetics and oral/aural skills development in lab and class. Prereq: C or better in ITAL 504 or permission. Special fee. Writing intensive.

ITAL 632 - Advanced Conversation and Composition II

Credits: 4.00

Advanced spoken and written Italian to attain aural-oral fluency. Advanced reading and composition. Prereq: C or better in ITAL 631 or permission. Special fee. Writing intensive.

ITAL 651 - Introduction to Italian Culture and Civilization I: Middle Ages, Renaissance, Baroque

Credits: 4.00

Survey of major representative writers and artists, studied against the backdrop of social and cultural history. Dante, Petrarch, Boccaccio, Machiavelli, Marino. Pre- or Coreq: ITAL 631 or permission. Special fee. (Not offered every year.) Writing intensive.

ITAL 652 - Introduction to Italian Culture and Civilization II: Age of Enlightenment, Romanticism, Modernism

Credits: 4.00

Survey of major representative writers and artists, studied against a backdrop of social and cultural history. Parini, Goldoni, Leopardi, Manzoni, Pavese, Calvino. Pre- or co-req: ITAL 631 or permission. Special fee. (Not offered every year.) Writing intensive.

ITAL 681A - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy

Credits: 4.00

Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.

Co-requisites: ARTS 695I

ITAL 681B - Interdisciplinary Field Seminar in Italian Culture: Ancient and Medieval Italy

Credits: 4.00

Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips

throughout Italy.

Co-requisites: ARTS 695I

ITAL 682A - Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy

Credits: 4.00

Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.

Co-requisites: ARTS 695I

ITAL 682B - Interdisciplinary Field Seminar in Italian Culture: Early Modern and Contemporary Italy

Credits: 4.00

Taking an interdisciplinary, but historically centered perspective, this course examines the construction of Italy as both a nation and a culture. The course is conducted on site and includes several fieldtrips throughout Italy.

Co-requisites: ARTS 695I

ITAL 684 - UNH-in-Italy Summer Program

Credits:

UNH-in-Italy Summer Program in Ascoli Piceno. This course number is a place-holder, but differs with regard to the special fee. Students register for both this administrative course number and the actual course number and the actual course being offered on site. These courses will vary from year to year, but the special fee will remain constant. Permission required. Special fee. Cr/F.

Co-requisites: ARTS 796, ARTS 996

ITAL 685 - UNH-in-Italy Study Abroad

Credits:

Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the fall semester. Special fee. Cr/F.

ITAL 686 - UNH-in-Italy Study Abroad

Credits:

Provides a unique opportunity to study abroad in Ascoli Piceno, Italy during the spring semester. Special fee. Cr/F

ITAL 733 - History and Development of the Italian Language

Credits: 4.00

Development of the Italian language from Roman times to the present. Examines the comparative method and internal reconstruction as well as processes of changes in phonology, syntax and lexicon. The course introduces issues in dialect geography, the basic features of paleography and surveys the evolution of scripts. Prereq: ITAL 631 or above or permission of instructor. Special fee.

ITAL 795 - Independent Study in Italian Language and Literature

Credits: 1.00 to 4.00

Individual guided study. Prereq: permission.

ITAL 796 - Independent Study in Italian Language and Literature

Credits: 1.00 to 4.00

Individual guided study. Prereq: permission.

Japanese

JPN 401 - Elementary Japanese I

Credits: 4.00

Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit.) Special fee.

JPN 402 - Elementary Japanese II

Credits: 4.00

Elements of Japanese grammar. Oral practice and written drills designed to achieve a mastery of basic grammatical patterns. Reading of graded exercises introducing the student to written Japanese (Hiragana and Katakana) and Chinese characters used in contemporary Japan. Labs. (No credit for students who have had two or more years of Japanese in secondary school; however, any such students whose studies of Japanese have been interrupted for a significant period of time should consult with the department chairperson about possibly receiving credit.) Special fee. Prereq: JPN 401.

JPN 425 - Introduction to Japanese Culture and Civilization

Credits: 4.00

Taught in English and designed for students interested in exploring Japanese culture and society. Learning by means of lectures, discussions, guest speakers, selected readings, and multimedia. Does not fulfill B.A. foreign language requirement, but does fulfill the Group 5 foreign culture general education requirement. Also counts toward the Asian Studies Minor. Special fee. Writing intensive.

JPN 425H - Honors/Introduction to Japanese Culture and Civilization

Credits: 4.00

See description for JPN 425. Writing intensive.

JPN 503 - Intermediate Japanese I

Credits: 4.00

Review of Japanese grammar. Reading of prose and practice in oral and written expression. Labs. Prereq: JPN 402 with a grade of C (2.00) or better or permission of instructor. Special fee.

JPN 504 - Intermediate Japanese II

Credits: 4.00

See description for JPN 503.

JPN 631 - Advanced Japanese I

Credits: 4.00

Advanced spoken and written Japanese to attain aural-oral fluency. Advanced reading and composition. Prereq: JPN 504 with a grade of C or better or permission of instructor. Special fee.

JPN 795 - Independent Study

Credits: 1.00 to 4.00

Open to highly qualified juniors and seniors. To be elected only with the permission of department chairperson and of the supervising faculty member or members. Barring duplication of subject, may be

repeated for credit.

JPN 796 - Independent Study

Credits: 1.00 to 4.00

See description for JPN 795.

Justice Studies

JUST 401 - Introduction to Justice Studies

Credits: 4.00

Overview of justice studies as the study of law and law-like systems. Includes literature from both the law and society, and criminology. Topics will include morality versus legality, the American legal civil and criminal system, torts, and adult versus juvenile justice.

JUST 405 - Technology, Crime, and Society: A Forensic Exploration of High-Tech and Digital Crime

Credits: 4.00

This course addresses the ways in which technology, crime, and law converge in the wider society in the twenty-first century. While emerging technologies bring great benefits, they also bring unintended and unforeseen consequences. This course uses a social science orientation to explore a new and evolving field of forensic technology.

JUST 501 - Research Methods

Credits: 4.00

Overview of the various methodologies used in justice studies research: quantitative, qualitative, and legal. Topics include issues of design such as ethics, reliability, and validity measurement. Students will design and write up research proposals using one of the methods reviewed in the course. Prereq: PSYC 402 or SOC 502 or equivalent. Special fee.

JUST 550 - Mock Trial

Credits: 2.00

Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. May be repeated up to a maximum of 8 credits. Special fee. Permission required.

JUST 551 - Mock Trial

Credits: 2.00

Participation in American Mock Trial Association intercollegiate competition. Study and preparation for trial of national case (criminal or civil, alternate years). Year long course, 2 credit hours per semester. May be repeated up to a maximum of 8 credits. Special fee. Permission required.

JUST 601 - Internship

Credits: 4.00

Placement by the justice studies coordinator in a position related to the justice system (e.g., criminal courts, corrections, civil courts, law firms, policy-making agencies, law enforcement agencies); weekly class meetings. Prereq: permission; seniors only.

JUST 602 - Research Internship

Credits: 4.00

Independent research working with Justice Studies faculty on their projects. Includes working with faculty at such research centers as Crimes against Children, Family Research Lab, and Justiceworks. Student/supervisor contract required. Minimum time commitment: 12 hours per week. Prereq: JUST 401, 501; or permission.

JUST 650 - Special Studies in Comparative Justice Systems

Credits: 4.00

This course will involve periodic offerings in comparative analysis of justice systems in an international context. May be repeated for a total of 8 credits provided both course offerings are substantially different. Must be taken with JUST 651 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515.

Co-requisites: INCO 657, JUST 651

JUST 651 - Field Studies in the Hungarian Justice System

Credits: 6.00

This course is designed to provide Justice Studies Budapest Program students with first-hand experience with the workings of the Hungarian justice system. Weekly field trips to agencies in law enforcement, the courts, and correctional facilities in the Budapest area will be arranged, and periodic lectures by Hungarian criminal justice professionals and scholars will compliment these visits. Must be taken with JUST 650 for those students participating in the Justice Studies Budapest Program. Prereq: POLT 507 and/or SOC 515.

Co-requisites: INCO 657, JUST 650

JUST 695 - Special Topics

Credits: 4.00

Special topics of advanced study in Justice Studies. Selected offerings reflect faculty expertise in teaching and research. May be repeated in different topic areas. Prereq: SOC 515 or POLT 507 and one other Justice Studies course. Must hold sophomore standing or above.

JUST 701 - Senior Seminar

Credits: 4.00

Advanced material in which the instructor has specialized knowledge through research and study. Topics may include the death penalty, terrorism, psychology of the jury, ethics and morality, immigration, therapeutic jurisprudence, and juveniles tried as adults. Prereq: JUST 401, 501.

JUST 765 - Special Topics

Credits: 4.00

New or specialized courses are presented under this listing. Staff present material not normally covered by the course offerings. Cross-listed courses. May be repeated but not duplicate content.

JUST 765W - Special Topics

Credits: 4.00

See description for JUST 765. Writing intensive.

JUST 795 - Reading and Research

Credits: 1.00 to 4.00

An independent study that is arranged by the student and supervised by a Justice Studies faculty member. Course requirements include: assembling and reading a substantial bibliography in the field; completing several written assignments and in some cases participating in hands-on experiences such as data collection and analysis. This course is by permission only and requires a signed agreement/proposal prior to registration. May be taken for 1-4 credits and includes a minimum of 3 hours of coursework per week per credit hour. Writing intensive in some select cases.

Kinesiology

KIN 444A - Risk and the Human Experience

Credits: 4.00

Explores the construct of risk in two phases: 1) knowledge building, focusing on the historical development of risk and its current manifestations in contemporary society; and 2) knowledge application, which focuses on applying conceptions of risk to various case study examples. The second phase of the course employs a problem-based learning approach with four distinct modules that ask students to apply, experience, and evaluate risk in a variety of contexts. Each module includes: a) a case study description, b) an experiential exercise, and c) a collaborative debriefing of the experience and reflective application to broader societal issues.

KIN 444B - Coolest Game?: Hockey and History

Credits: 4.00

This course uses hockey as a vehicle for exploration and practice in three critical processes of scholarship: 1) analyzing and framing questions, 2) employing different methods/sources for pursuing answers to the questions, 3) presenting the results of research. Research exercises, discussions, and papers consider hockey's development in larger social and cultural contexts/practices such as ethnicity, nationalism, technology, mass media and marketing, gender relations, labor relations, and regionalism. The course also looks at hockey as a medium of craft, hero formation, community, and collective violence. Students read and analyze interdisciplinary articles and books, and also work with a range of historical sources, including those in the UNH Archives and the Charles Holt Archives of American Hockey. Writing intensive.

KIN 444C - Amped Up: Social and Psychological Perspectives on Adventure

Credits: 4.00

Interest in the topic of adventure has exploded in recent years; with enough money, almost any adventure is available to anyone. The widespread rise in popularity of adventure brings questions, however. What is the role of adventure in modern society? What is its value to individuals? Through lectures, written assignments, group projects, multimedia, and experiential learning, this course surveys psychological, sociological, and anthropological perspectives on these and students' own questions. Special fee.

KIN 500 - Historical and Contemporary Issues in Physical Education

Credits: 4.00

Physical education is discussed in historical and philosophical terms to lay the foundation for later of recent issues and trends within the field. Open to KIN students in the pedagogy option, undeclared HHS students, and undeclared liberal arts students. Prereq: KIN Physical Education Pedagogy or department approval.

KIN 501 - First Aid: Responding to Emergencies

Credits: 2.00

Covers the nationally accredited American National Red Cross First Aid--Responding to Emergencies and BLS-CPR professional rescuer course. May not repeat for credit. Special fee. Cr/F.

KIN 505 - Prevention and Care of Athletic Injuries

Credits: 4.00

A primer in athletic injury, care, prevention and rehabilitation, specifically designed for anyone involved in sports or exercise either as a coach, personal trainer, exercise physiologist, first-aid or participant. Topics to be covered include general conditioning, bony, muscular and ligamentous anatomy of the trunk and extremities, head trauma, emergency care, the injury process, thermal conditions, nutritional considerations and the diabetic and asthmatic athlete. Special fee.

KIN 506 - Concepts of Athletic Training for the Professional

Credits: 4.00

Introduces techniques for prevention, recognition, treatment, and rehabilitation of common athletic injuries. Course is a prerequisite for beginning clinical experience in athletic training rooms for the athletic training professional. Prereq: ZOOL 507.

Co-requisites: KIN 507

KIN 507 - Concepts of Athletic Training Lab

Credits: 1.00

Theory and techniques of protective taping and wrapping to prevent common athletic injuries. Techniques of transfer and transportation of injured athletes. Identification of anatomical landmarks. Observation and practice in the University athletic training rooms. Special fee. Coreq: KIN 506.

Co-requisites: KIN 506

KIN 521 - Theory of Coaching Basketball

Credits: 2.00

Individual and team offense and defense; rules of the game. Problems in team handling and conditioning. Prereq: permission. Pre- or Coreq: KIN 565.

KIN 522 - Theory of Coaching Football

Credits: 2.00

Systems of play; team and individual offensive and defensive fundamentals; theory and strategy of team play; coaching methods, physical conditioning; rules.

KIN 523 - Theory of Coaching Hockey

Credits: 2.00

Basic hockey skills. Fundamentals of individual and team offense and defense; coaching methods; rules. Prereq: student must have basic skating skills prior to taking course. Pre- or Coreq: KIN 565. Special fee.

KIN 525 - Theory of Coaching Soccer

Credits: 2.00

Fundamental and advanced skills and techniques; offensive and defensive principles of team play; tactical formations and strategy; methods of training and practicing; rules. Prereq: permission. Pre- or Coreq: KIN 565.

KIN 527 - Scientific Foundations of Health and Fitness

Credits: 4.00

Provides students with practical, scientific, entry-level information relative to physical conditioning, health, and wellness from childhood through adulthood. Students are given theoretical information that will be followed by practical, hands-on experiences offered through laboratory experiences. Special fee. Writing intensive.

KIN 528 - Theory of Coaching Track and Field

Credits: 2.00

Starting, sprinting, middle-distance and distance running, relay, hurdling, high and broad jumping, pole vault, shot putting, discus, hammer, and javelin. Methods of training and practicing. Prereq: permission. Pre- or Coreq: KIN 565.

KIN 533 - Basic Scuba

Credits: 3.00

Full semester in the fundamentals of scuba diving. Through a progressive series of classroom lectures and pool sessions, students gain the knowledge and skill necessary to conduct themselves with competence

underwater. Emphasizes safety and problem prevention. Once the students are ready, further training takes place in an open ocean environment. NAUI Certification for successful completion of all course requirements and at least five open-water dives. Strong swimming ability required. Special fee. Lab. Credit/Fail.

KIN 540 - Top Rope Rock Climbing

Credits: 4.00

Provides students with an understanding of the equipment, techniques, and procedures necessary to safely setup and manage top rope rock climbing and rappelling sites. Specific topics include: anchor construction, belay methods, climbing technique, and site selection and management. Prereq: KIN:OE majors. Special fee. Lab.

KIN 541 - Management of Initiatives and Challenge Courses

Credits: 4.00

Management of adventure initiatives and challenge courses as an educational and therapeutic medium with a variety of populations. Focuses on skill development, processing techniques, rescue skills, evaluation techniques, and applications to specific client groups. Special fee. Lab.

KIN 542 - Sea Kayaking

Credits: 2.00

An introduction to the technical, teaching, and leadership skills required to lead inland kayaking programs and to assist with coastal canoeing programs. Emphasis on individual kayaking skills, self- and group-assisted rescues, safety and group management in a marine environment, and tactics for ocean travel and navigation. Special fee. Lab.

KIN 543 - Winter Adventure Programming

Credits: 2.00

Provides an introduction to the leadership of winter expeditions. Students develop an understanding of winter trip planning and organization, winter nutrition and equipment, snow shoeing and/or backcountry skiing, cold weather injuries, snow shelter construction, winter camping, and group management on winter backpacking trips. Additional topics may include ice climbing and basic mountaineering skills. Prereq: KIN:OE major, KIN 551. Special fee. Lab.

KIN 545 - High Angle Rescue

Credits: 2.00

Provides students with the skills necessary to perform self and group rescues in a variety of steep terrain and high angle environments. Specific topics include knots for rescue, rope ascension, assisted/counterbalance rappelling, aid climbing, haul systems, and litter lowering and raising in vertical environments. Prereq: KIN 547 or instructor permission. Special fee. Lab.

KIN 546 - White Water Canoeing

Credits: 3.00

Introduces white water canoeing skills. Students gain a basic understanding of the equipment, techniques, and procedures to conduct canoeing activities in flat water, moving water, and white water environments. Emphasizes development of individual paddling skills, safe and conscientious paddling, and group management on moving water and white water. Prereq: KIN:OE majors, KIN 552. Special fee. Lab.

KIN 547 - Lead Rock Climbing

Credits: 3.00

Advanced climbing course designed to provide students with a structured environment to transition from top rope rock climbing or sport climbing to multi-pitch traditional lead climbing. Focuses on the development of the technical skills and judgment associated with leading in a multi-pitch environment.

Specific topics include use of artificial protection, belay anchor construction, multi-pitch rappelling, knots, rope/belay station management, climbing technique, and multi-pitch leading considerations. Prereq: KIN 540 or instructor permission. Special fee. Lab.

KIN 548 - Winter Expedition Programming

Credits: 4.00

Introduces methods and techniques of winter mountain travel including camping, alpine climbing skills, and ice climbing skills. A variety of teaching styles are used to familiarize students with each topic area, and occur in classroom, basecamp, and wilderness settings. Prereq: KIN OE majors, KIN 551. Special fee. Lab.

KIN 549 - Wilderness Navigation

Credits: 4.00

Introduces the methods and techniques of wilderness navigation. Topics include map interpretation, compass use, global positioning systems, and other navigation methods. A variety of teaching styles are used to familiarize the students with each topic area, and occur in both classroom and wilderness settings. Special fee. Lab.

KIN 550 - Outdoor Education Philosophy and Methods

Credits: 4.00

Explores the philosophical basis for experiential and outdoor education. Experiential exercises and readings focus on the role of risk, traditional versus progressive education, role of nature, ethics, models of learning and facilitation, and developing a personal philosophy of outdoor education. Includes full-day outdoor education laboratory experiences. Special fee. Writing intensive.

KIN 551 - Adventure Programming: Backcountry Based Experiences

Credits: 3.00

Introduces the leadership of land-based backpacking programs. Students develop an understanding of backpacking equipment, trip planning and organization, instruction of basic camping skills, implementation of safety procedures and group management on backpacking trips. Special fee. Lab.

KIN 552 - Adventure Programming: Water Based Experiences

Credits: 3.00

Introduces the leadership of canoe expeditions. Students develop an understanding of necessary canoeing equipment, trip planning and organization, instruction of basic canoeing strokes, implementation of safety procedures, and group management on canoe expeditions. Prereq: KIN 551. Special fee. Lab.

KIN 560 - Sport Psychology

Credits: 4.00

Introduction to the discipline of sport psychology. Explores behavioral, cognitive, and social psychology in relation to elite, collegiate, and high school athletes, as well as recreational sport participants. Permission required

KIN 561 - History of American Sport and Physical Culture

Credits: 4.00

Major individuals, organizations, and trends that influenced the development of an American industry in sports, active recreation, and physical fitness. Readings, discussions, and research projects provide experience in the craft and utility of history.

KIN 561W - History of American Sport and Physical Culture

Credits: 4.00

See description for KIN 561. Writing intensive.

KIN 562 - Sports Media Relations

Credits: 4.00

Basic concepts of sports information related to preparation of material for public relations including radio, television, and publications. Includes guest lecturers and work in the UNH Sports Information Office.

KIN 565 - Principles of Coaching

Credits: 4.00

Overviews current theory and practice in coaching education, including sport pedagogy, physiology, psychology, administration, and risk management. Issues of performance and competition specific to child, youth, and collegiate coaching are addressed.

KIN 570 - Elementary Physical Education Practicum

Credits: 4.00

Provides opportunities for developing and refining elementary and special physical education movement content with pedagogical processes. Emphasizes demonstrating competence in teaching and establishing a least-restrictive learning environment. Prereq: KIN 610; KIN:PE Pedagogy majors. Writing intensive.

KIN 580 - Sport Industry

Credits: 4.00

Overviews the various segments that make up the sport industry, including governing bodies, the mass media, sporting goods firms, players' and coaches' associations, public regulatory agencies, and secondary and higher education. Readings and discussions consider the development and structure of each segment. Interaction between segments, legal issues, and policy implications. While the course will focus on the United States, there is some comparison to other countries.

KIN 585 - Emergency First Responder

Credits: 4.00

Standards of practice that conform to the content of the U.S. Department of Transportation curriculum for First Responder. Initial evaluation and stabilization of patients at the scene of medical emergencies, CPR, and other basic medical care for illness and injury. Prepares the student for the New Hampshire First Responder Certification Examination. Prereq: KIN: Athletic Training; KIN: Exercise Science; HHS: undeclared. Lab. Special fee.

KIN 600 - Movement and Gymnastics Exploration

Credits: 4.00

Combines the elements of movement education and gymnastics progressions to develop a basis for students to learn the fundamentals of movement and how to teach efficient and safe movement and gymnastics skills in a variety of settings. Includes fundamental movement skills, movement elements, fundamental gymnastics skills, and fundamental gymnastics spotting skills.

KIN 601 - Lifetime Sports

Credits: 3.00

Provides teachers with the technical knowledge as well as the psychomotor and pedagogical skills necessary for instructing lifetime activities, including tennis and badminton. Prereq: KIN:PE Pedagogy majors. Special fee.

KIN 603 - Team Sports

Credits: 3.00

Provides teachers with the technical, physical, and pedagogical skills necessary for instructing team sports, including soccer and volleyball. Prereq: KIN:PE Pedagogy majors.

KIN 607 - Biology of Aging

Credits: 4.00

Biological mechanisms of the aging process, with special emphasis on human aging; changes due to chronic disease.

KIN 610 - Elementary Physical Education Pedagogy**Credits: 4.00**

Planning, implementing, and evaluating a movement-based curricular model of instruction relative to teaching preschool and elementary-aged children physical education. Systematic observation, teaching, strategies and styles, lesson design, and methods of integrating academic subject matter into elementary physical education. Prereq: KIN:PE Pedagogy majors; KIN 600, 675.

KIN 620 - Physiology of Exercise**Credits: 4.00**

Acute and chronic effects of exercise. Muscle physiology, respiration, cardiac function, circulation, energy metabolism, and application to training. Prereq: ZOOL 507-508.

KIN 621 - Exercise Laboratory Techniques**Credits: 4.00**

Laboratory assessment of functional capacity, body composition, anaerobic power, anaerobic threshold, pulmonary function, blood pressure control, muscle strength, and temperature regulation. Field tests are used where appropriate. Extensive out-of-class time is required as each week a detailed lab report is submitted for grading. Prereq: KIN 620. KIN Exercise Science majors. Special fee. Writing intensive.

KIN 648 - Current Issues in Teaching Health**Credits: 4.00**

Designed to assist students in their understanding of issues related to health and health education.

KIN 650A - Internship in Exercise Science**Credits: 4.00 or 8.00**

Individualized experiential training in an external (off-campus) exercise science setting (hospital, health & fitness club, business, physical therapy, or medical (physician assistant) offices, research laboratory) offering programs of prevention, intervention, and/or rehabilitation. The internship requires 400 contact hours and is a full-time commitment (10 weeks at 40 hours per week) usually taken the summer following the senior academic year. Activities may include graded exercise testing, exercise prescription, and exercise leadership. Must have completed all requirements for the option or have permission from the instructor prior to starting the internship. The course may be repeated once with 4 credits taken each time for a total of 8 credits. Cr/F.

KIN 650B - Internship in Outdoor Education**Credits: 2.00 to 8.00**

Experiential learning in a setting appropriate to the major option and to student's objectives. An 8 credit internship requires a minimum of 600 hours experience; fewer credits will require proportionally fewer hours. Outdoor Education: Provides an appropriate transition from undergraduate education and future employment in the field of outdoor education. Generally done after students have completed all other requirements for the option. Prereq: junior/senior major; permission. Cr/F. May be repeated up to a maximum of 12 credits, with no more than 8 credits taken in any given semester.

KIN 650C - Internship in Sport Studies**Credits: 1.00 to 8.00**

Experiential learning in a setting appropriate to the major option and to student's objectives. An 8 credit internship requires a minimum of 600 hours experience; fewer credits will require proportionally fewer hours. Sport Studies: May be on- or off-campus with an approved organization. Student must participate in

securing the internship. A journal, bi-weekly reports and a final paper required. Prereq: junior/senior major; permission. May be repeated up to a maximum of 12 credits, with no more than 8 credits taken in any given semester.

KIN 650D - Internship in Coaching

Credits: 2.00 to 4.00

Experiential learning in a setting appropriate to student's learning objectives in coaching. May be on- or off-campus with an approved organization. Student must participate in securing the assistantship. A journal, bi-weekly reports, and final report required. May be repeated up to a maximum of 4 credits. Prereq: KIN 505, 565.

KIN 652 - Clinical Kinesiology

Credits: 4.00

The science of human movement from biomechanical, neuromuscular, and anatomical perspectives; human muscular, joint, and connective tissue anatomy; and actions of skeletal muscles are detailed. Prereq: HHS major; ZOOL 507-508. Coreq: KIN 653A or 653B.

KIN 653A - Musculoskeletal Assessment

Credits: 2.00

Principles and methodology of joint range of motion, body mechanics, and muscle strength evaluation. Uses muscle palpation, goniometry, manual muscle testing, hand-held dynamometry, electromyography, and human pro-sections to facilitate understanding of musculoskeletal anatomy and assessment. Special fee. Prereq: ZOOL 507-508.

Co-requisites: KIN 652

KIN 653B - Biomechanical Analysis of Movement

Credits: 2.00

Principles and methodology of analyzing posture and movement. Uses muscle palpation and testing, electromyography, and cinematography to facilitate students' understanding of movement analysis. Special fee. Prereq: ZOOL 507-508.

Co-requisites:

KIN 655 - Middle School and Secondary Physical Education Pedagogy

Credits: 4.00

Planning, implementing, and evaluating curricular models of instruction, as well as effective teaching strategies and styles relevant to secondary (grades 6-12) physical education is studied. Content and process knowledge is applied through micro-teaching episodes with peers. Systematic observation is introduced for the purpose of reflecting on teaching behaviors. Prereq: EDUC 500. Lab.

KIN 658 - Evaluation and Care of Athletic Training I

Credits: 4.00

Factors involved in the care and recognition of athletic injuries. Mechanisms, etiology, and pathology. Clinical signs and symptoms. Techniques for performing appropriate test and assessment procedures. First aid procedures. Emphasizes fractures, soft tissue injury, and the lower extremities. Prereq: KIN 506; ZOOL 507-508. Writing intensive.

Co-requisites: KIN 658L

KIN 658L - Evaluation and Care of Athletic Training Injury I Lab

Credits: 1.00

Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: KIN 507.

Co-requisites: KIN 658

KIN 659 - Evaluation and Care of Athletic Training Injury II

Credits: 4.00

Factors involved in the care and recognition of athletic injuries. Mechanisms, etiology, and pathology. Clinical signs and symptoms. Techniques for performing appropriate test and assessment procedures. First aid procedures. Emphasizes upper extremities, head, and trunk. Prereq: KIN 506; ZOOL 507-508. Writing intensive.

Co-requisites: KIN 659L

KIN 659L - Evaluation and Care of Athletic Training Injury II Lab

Credits: 1.00

Techniques and practice for performing test and assessment procedures for athletic injuries. Prereq: KIN 507.

Co-requisites: KIN 659

KIN 660 - Therapeutic Exercise in Athletic Training

Credits: 4.00

Rationale, use, and application of exercise in athletic injury rehabilitation. Basic components of designing and implementing rehab programs. Assessment of physical/injury status. Prereq: KIN 652; 653A.

Co-requisites: KIN 661

KIN 661 - Therapeutic Exercise in Athletic Training Laboratory

Credits: 1.00

Students learn and practice psychomotor techniques associated with rehabilitative and conditioning exercise.

Co-requisites: KIN 660

KIN 662 - Therapeutic Modalities in Athletic Training

Credits: 4.00

Rationale, use, and application of therapeutic modalities in athletic injury rehabilitation. Principles of electrophysics and biophysics. Physiological effects on body tissues, indications and contraindications, and clinical applications. Prereq: KIN 506; 507.

Co-requisites: KIN 663

KIN 663 - Therapeutic Modalities in Athletic Training Laboratory

Credits: 1.00

Students use and practice with the devices, machines, and techniques associated with the treatment and rehabilitation of athletic injuries.

Co-requisites: KIN 662

KIN 665 - Laboratory Practicum in Athletic Training

Credits: 2.00

Clinical experience in athletic training under the supervision of an approved clinical instructor. KIN 665A, Level I. Prereq: KIN 506. KIN 665B, Level II. Prereq: KIN 658. KIN 665C, Level III. Prereq: KIN 659. KIN 665D, Level IV. Prereq: KIN 710. KIN 665E, Level V. Prereq: KIN 670.

KIN 666 - Middle School and Secondary Physical Education Practicum

Credits: 4.00

Apply secondary content and process knowledge within microteaching experiences with peers. Students also teach grades 6 through 12 within the public school setting. Emphasizes lesson, unit plan design, and systematic observation. Prereq: KIN 563, KIN: PE Pedagogy majors. Writing intensive.

KIN 667 - Pharmacology for Athletic Training

Credits: 2.00

Introduces the use of drugs as they pertain to the health care of athletes and their effect on athletic competition. Topics to be covered will include basic drug action, commonly prescribed medications, dealing with the diabetic and asthmatic athlete and performance enhancing substances. Prereq: junior or senior Standing.

KIN 668 - Ergogenic Aids in Sports**Credits: 2.00**

In sports, faster, higher, stronger, longer, and better is what everyone wants. Athletes and coaches seek out sports ergogenics that will give them a training and performance advantage over their competition. This course introduces the use of sports ergogenics and their use in athletic competition. Prereq: sophomore, junior or senior Standing.

KIN 670 - General Medical Conditions in Athletics**Credits: 4.00**

Athletes often sustain non-orthopedic pathologic conditions. An athletic trainer must be able to recognize, assess, and determine appropriate action or referral in an athlete suffering general or systemic illness or disease. Covers conditions affecting the major systems of the body. Prereq: KIN 620.

KIN 675 - Motor Development and Learning**Credits: 4.00**

Characteristics of motor behavior across time, and the role of movement in children's and adolescents' total development. Growth processes, stage theory, as well as the relationship of maturation, experience, and the environment to motor development. Prereq: KIN 600; KIN: PE Pedagogy majors; family studies majors.

KIN 676 - Adventure Activities**Credits: 3.00**

Provides teachers with the technical, physical, and teaching skills necessary to instruct adventure activities, initiatives, ropes course management, and orienteering. Prereq: KIN: PE Pedagogy majors. Special fee.

KIN 681 - Theory of Adventure Education**Credits: 4.00**

An in-depth investigation of the theories that underpin the professional practice of outdoor education. Students examine program applications in corporate, therapeutic, and educational settings, study advanced facilitation techniques, and analyze pertinent outdoor education research. Prereq: KIN 550. Special fee. Writing intensive.

KIN 682 - Outdoor Leadership**Credits: 4.00**

Leadership theories applied through field experiences in adventure programming. Students will understand a variety of leadership, teaching, and communication styles, decision-making models, program planning and logistics, and risk management considerations for planning and delivering adventure programs. May be repeated up to a maximum of 8 credits. Prereq: KIN 541, 550, 551, 684, 685. KIN: OE majors or instructor permission. Special fee.

KIN 684 - Emergency Medical Care: Principles and Practices**Credits: 3.00**

Based on the curriculum established by the U.S. Department of Transportation for Emergency Technician (EMT-Basic), and authorized by the State of New Hampshire-Bureau of Emergency Medical Services (EMS). Topics covered include trauma; medical, environmental and psychiatric emergencies; childbirth; hazardous materials; and infection control procedures. Students participate in clinical observations in one of the region's hospital emergency departments. Students have the option to take the state of NH-EMS

Practical Examination and the National Registry Written Examination for EMT-Basics. Passage of both these examinations leads to national certification as an EMT-Basic. Prereq: department approval.

Co-requisites: KIN 685

KIN 685 - Emergency Medical Care: Principles and Practices Lab

Credits: 2.00

Basic emergency health care, including trauma patients, medical and environmental emergencies, and childbirth. Includes clinical experience with a local hospital and ambulance service. Prepares the student for the National Registry of EMT's Examination. Prereq: department approval. Special fee.

Co-requisites: KIN 684

KIN 686 - Wilderness Emergency Medical Care

Credits: 4.00

Standards of practice for professionals providing emergency medical care in remote areas. Consideration of prolonged transport times, severe environments, and the use of portable and improvised equipment. Topics include wilderness trauma and illness, search and rescue operations, and environmental emergencies. Prereq: KIN 684, KIN 685. Special fee.

KIN 687 - Leadership Practicum

Credits: 4.00

Supervised semester-long experience working with an organization external to the university setting to plan, prepare, and implement outdoor education programs and activities. Class sessions involve advanced leadership topics (e.g., current issues in risk management, conflict resolution, social justice issues, adaptive programming). Prereq: KIN OE major. Lab.

KIN 693 - Teaching Assistantship

Credits: 2.00

A) Physical Education Pedagogy; B) Exercise Leader; C) Outdoor Education; D) Science Labs; E) Cardiac Rehabilitation; F) Coaching. Students serve as teaching assistants in assigned class activities. Assignments to be made by the class instructor may include teaching assistants' and administrative duties. May take two different sections. May be repeated up to a maximum of 4 credits. Prereq: junior standing; departmental approval. Cr/F.

KIN 694 - Supervised Teaching in Physical Education

Credits: 4.00

Student teaching course is the culminating experience for students who wish to be certified to teach physical education upon completion of their senior year. Students must sign-up for both KIN 694 and EDUC 694(.D01). They will receive 4 credit hours for each. Permission required. Cr/F.

KIN 696 - Independent Study

Credits: 2.00 to 4.00

An advanced, individual scholarly project under the direct supervision of a faculty member. Prereq: junior or senior; departmental approval. May be repeated to a maximum of 8 credits. Special fee.

KIN 696W - Independent Study

Credits: 2.00 to 4.00

An advanced, writing-intensive, individual scholarly project under the direct supervision of a faculty member. Student and Faculty Adviser will prepare a written proposal that outlines: the questions to be pursued, the methods of investigation, the student's qualifications to conduct the research, the nature of the finished written product (e.g. case study, position paper, extended lab report) This proposal must be approved by option faculty and the department chair prior to the student's registration for KIN 696 WI. All KIN 696 WI projects must include: Some forms of informal, ungraded writing such as a journal, reading

summaries, draft chapters, or invention activities. Regular writing interaction between student and faculty adviser (i.e. at least weekly or biweekly), to include written feedback from the adviser. A finished product that is polished via revision. Faculty sponsors and students should consult the resources and guidelines of the UNH Writing Program, available at: <http://www.unh.edu/writing/> Prereq: junior or senior; departmental approval. May be repeated to a maximum of 8 credits. Writing intensive.

KIN 699H - Honors Project

Credits: 4.00

Project first involves tutorial sessions to introduce the student to the experimental design, after which a research question is developed. After an appropriate literature review, the student collects and analyzes data, forms conclusions, and prepares a written report on the findings.

KIN 704 - Electrocardiography

Credits: 4.00

Designed to provide exposure to basic interpretation and identification of electrocardiograms (ECGs). Includes detailed heart anatomy, coronary circulation, cardiac conduction system, electrocardiogram development, and all aspects pertaining to normal and abnormal ECGs. Prereq: KIN 621, KIN Exercise Science majors.

KIN 705 - Topics in Applied Physiology

Credits: 4.00

Advanced exercise physiology course dealing with topics both current and relevant to exercise science majors. Includes genetics, environmental influences, immune system, detraining and over-training, epidemiology, ergogenic acids, and the influence of age and gender. Prereq: KIN 620, 621. KIN Exercise Science majors. Special fee.

KIN 706 - Neurology

Credits: 4.00

Development, morphology, internal configuration, physiology, histology, function, and pathology of the human nervous system. Prereq: ZOOL 507-508 or equivalent. Special fee.

Co-requisites: KIN 707

KIN 707 - Neurology Lab

Credits: 2.00

Basic histology, neuroanatomy and neurophysiology of the human nervous system. Use of brain specimens, videos and pathology case studies to elucidate cell structure, sensory and motor systems, and spinal cord, brainstem and cortical organization and anatomy. Prereq: ZOOL 507-508 or COMM 521 or equivalent. Cr/F.

Co-requisites: KIN 706

KIN 710 - Organization and Administration of Athletic Training Programs

Credits: 4.00

Principles of organization and administration of athletic training programs; management of personnel; legal aspects; relation of athletic trainer to athletic programs and sports medicine team. Writing intensive.

KIN 715 - Seminar in Athletic Training

Credits: 4.00

Career issues and special topics in athletic training. Students are required to submit and present a term project on assigned topic.

KIN 718 - Career Preparation in Athletic Training

Credits: 4.00

Designed to provide the methods to integrate the knowledge and skills learned in prerequisite courses into practical applications as the students prepare to graduate. Advanced knowledge and skills are emphasized in the areas of evaluation, treatment, rehabilitation, and implementation of policies and procedures. Prereq: KIN 658, 659, 660, 662, 710, KIN: Athletic Training majors.

KIN 720 - Science and Practice of Strength Training

Credits: 4.00

Designed to provide students exposure to the knowledge and practical experience necessary for establishing strength development programs in a variety of populations, including healthy, athletic, and higher risk individuals. Program design, correct lifting techniques, physiological adaptations, and organization and administration of programs are highlighted. Includes fundamentals regarding the selection of programs and equipment, spotting techniques, as well as ways to assess strength and power in humans without expensive equipment. Prereq: KIN 620.

Co-requisites:

KIN 724 - Metabolic Adaptations to Exercise

Credits: 4.00

Overview of the metabolic processes that occur during exercise and metabolic changes that occur as a result of exercise training. Topics include glycogenolysis and glycolysis in muscle, cellular oxidation of pyruvate, lipid metabolism, metabolism of proteins and amino acids, neural and endocrine control of metabolism, and fatigue during muscular exercise. Prereq: KIN 620; CHEM 404; KIN: Exercise Science majors. Special fee.

KIN 730 - Research Diving Techniques

Credits: 4.00

Takes previously certified divers with the need to assist, or conduct research underwater, and trains them in the methods and specific techniques of scientific diving programs. Progressively builds upon the basic diving skills until the student is knowledgeable and competent. Culminates with a small research project formulated and implemented by the students. Prereq: SCUBA certification, department approval. Special fee. (Also offered as ZOOL 730.)

KIN 731 - Inclusive Teaching Through Sport

Credits: 4.00

This course examines the use sports, including disability sports such as boccia, sit-volleyball, goalball and wheelchair basketball as a program of instruction for individuals of all abilities. The course adopts a holistic approach to inclusion that examines best practices within specific contexts. The medical, social, and relational models of disability are used as a format for discussion and the inclusion spectrum is adopted as the underlying format for instruction.

KIN 735 - Advanced Scuba

Credits: 4.00

Classroom, pool, and open-water "hands-on" application in advanced diving techniques. The student's diving ability progresses to become safer and highly educated in a variety of diving disciplines. Topics covered are navigation, search and recovery, low visibility/night diving, surface supplied diving, boat diving, accident management hyperbaric medicine, and physiology and scientific research methods for divers. Special fee. Lab.

KIN 736 - Fitness and Graded Exercise Testing

Credits: 4.00

Designed to provide students exposure to the knowledge and practical experience necessary for establishing exercise programs in apparently healthy populations. Topics include fitness testing, test interpretation, and exercise prescription. Prereq: KIN 704, KIN Exercise Science majors. Special fee.

KIN 737 - Exercise Prescription and Leadership

Credits: 4.00

Provides exposure to the knowledge and practical experience necessary for establishing exercise and health promotion programs in a variety of populations. Includes fundamentals regarding personal training and program selection, implementation and equipment, legal issues, and budget establishment. Strength training programs and special populations are highlighted. Prereq: KIN 736; KIN: Exercise Science majors.

KIN 740 - Athletic Administration

Credits: 4.00

Introduces basic management components and processes used in the successful administration of school and college athletic programs. Topics include planning, organizing, and managing sports programs, personnel, and policies; game scheduling; finances and facilities; equipment and event management; student support services; and key legal issues. Prereq: permission.

KIN 741 - Social Issues in Contemporary Sports

Credits: 4.00

Investigation of interrelationships among sport, culture, and society in an attempt to understand the role and function of sport in contemporary society. Overview of selected socio-cultural factors that influence and result from participation in sports. Prereq: SOC 400 or permission.

KIN 742 - PE Practicum for Students with Disabilities

Credits: 4.00

This experience is part of the required coursework for the Adapted Physical Education (PE/APE) certificate through the Graduate School. As a bi-weekly seminar intergrates the field experience with general physical education (GPE) and adapted physical education (PE/APE) concepts through class discussion, exercises, readings, and written assignments. The seminar format provides an opportunity for refinement and continued development of teacher skills and attributes for working with students with disabilities. Students learn to instruct effectively, to participate in the Individual Education Plan (IEP) process, and to manage their time.

KIN 743 - Sport Marketing

Credits: 4.00

Survey of concepts and processes used in the successful marketing of sport programs and events. Special emphasis on the unique or unusual aspects of sport products, markets, and consumers. Prereq: MKTG 550 or permission.

KIN #750 - Theories of Motivation in Sport and Exercise

Credits: 4.00

Social cognitive theories of achievement motivation as they relate to sport and exercise participation. Special attention will be directed at social interactions in sport. Prereq: PSYC 401; permission.

KIN 761 - Senior Seminar Sport Studies

Credits: 4.00

Discussions of sport studies topics, such as gambling, aggression, media, gender, race, class. Students consider different disciplinary approaches to these topics and develop projects to advance knowledge related to their interests. Prereq: KIN: Sport Studies majors; students must accumulate an aggregate total of 150 hours of work (paid or unpaid) in four approved sport organizations before they are allowed to register for KIN 761. Writing intensive.

KIN 780 - Psychological Factors in Sport

Credits: 4.00

Factors of outstanding athletic achievement; psychological variables in competition; the actions and interactions of sport, spectator, and athlete. Special attention directed to strategies for coaches, teachers, and athletic trainers to utilize sport psychology in their professional practice. Prereq: PSYC 401 or KIN 671.

KIN 781 - Inclusion in Physical Education

Credits: 4.00

Overview of special physical education. Addresses modifying instruction, expectations, and learning environment to accommodate physical and motor behaviors of students with disabilities. Prereq: KIN P.E. Pedagogy majors. Lab. Writing intensive.

KIN 782 - Therapeutic Applications of Adventure Programming

Credits: 4.00

Examines the use of adventure activities as elements of therapeutic treatment plans. Incorporates theoretical seminars and associated practical experiences. Prereq: KIN 787.

KIN 786 - Organization and Administration of Outdoor Education Programs

Credits: 4.00

Study of administration of outdoor education programs using a variety of organizational models. Students use simulated exercises and work with outdoor agencies on special projects to learn the key factors necessary to manage a program. manage a program. KIN Outdoor Education majors. Special fee. Writing intensive.

KIN 787 - Theory of Adventure Education

Credits: 4.00

Provides an in-depth investigation of the theories that underpin professional practice and research in adventure education. Students examine program applications in different settings, analyze pertinent outdoor education and social science research, and independently complete a research or applied project. Prereq: KIN 550 or permission of the instructor. Special fee. Writing intensive.

KIN 794 - Cardiopulmonary Pathologies

Credits: 4.00

Lecture study of the anatomy, physiology, and pathophysiology of the cardiac, vascular, and pulmonary systems. Particular emphasis on the study of cardiovascular function in diseased and stressed states. Clinical assessment of the cardiopulmonary patient. Prereq: KIN 704.

KIN 795 - Practicum in Cardiac Rehabilitation

Credits: 2.00

Provides students with practical and theoretical experience in all aspects involving cardiac rehabilitation programs. Prereq: KIN 704, 794.

KIN 798 - Special Topics

Credits: 1.00 to 4.00

New or specialized courses not normally covered in regular course offerings. May be repeated up to 8 credits. Prereq: departmental approval. Special fee on some sections.

Languages, Literatures & Cultures

LLC 401 - Elementary Language Study I

Credits: 4.00

Generic course introduces students to a foreign language and culture through speaking, listening, reading, writing, labs and films. Designed for students without previous training in the specified language. 401-402 taken together satisfies the foreign language requirement. Special fee.

LLC 402 - Elementary Language Study II

Credits: 4.00

See description for LLC 401. Special fee.

LLC 440 - Cultural Approaches to Film and Fascism

Credits: 4.00

Taking a transnational perspective, this course examines the phenomenon of fascism through its cinematic representation. Analyzes definitions of fascism, narrative representations of fascism and the role of propaganda in fascism. Special fee.

LLC 444 - Walls: Mortar and Metaphor

Credits: 4.00

Introduces the critical habits and skills of inquiry-based learning. As a General Education 8 course in Literature and Ideas it focuses on the wall as a "concrete" aspect of everyday material culture and as a metaphorical site of cultural and ideological definition, experience, memory and expression in diverse contexts. Students keep a journal, write a research paper in multiple drafts and write a final essay. Writing intensive.

LLC 444A - Love and Nation in German Film

Credits: 4.00

In this course, we look at German films from the early Weimar period to the present. Our main question is: What connections exist between love stories and the creation of national identity in films from different periods of German history? We learn to read films as an aesthetic text with a narrative and form and as an historical text with a social and political function. Special fee. Writing intensive.

LLC 444B - France and the European Union in a Global World

Credits: 4.00

Encourages students in their freshman year of college-level education to move beyond the US borders, to make connections with the diversity of European cultures, and to think as citizens of a global world. This introductory course focuses on contemporary France from the perspective of a long European historical and cultural tradition, as well as in the new context of post-May 29, 2005. (French vote against the EU Constitution) The icons on both sides of the Euro banknotes serve as illustrations of the scope of this course: bridges will be established between European countries, and windows will open onto 21st Century France at a critical crossroad. This course ultimately leads students to ask themselves new questions about their own history, identity and culture. Special fee. Writing intensive.

LLC 444C - World of Salvador Dali

Credits: 4.00

Students investigate essential components of modern culture and Western tradition through the mind, art and writing of Salvador Dali. This interdisciplinary course poses fundamental, universal questions about human existence including death, rebirth, eternity and God, sexuality and love as well as the irrational dark

side of our psyche. Certain cultural movements such as the Surrealist movement, Freudian psychoanalysis, the Gothic tradition and modern scientific discoveries and concepts are also explored. Special fee. Writing intensive.

LLC 444D - Love in Disguise

Credits: 4.00

This course is designed around the theme of love in disguise, which we will study in French dramas (in translation) from the 17th to the 20th centuries. In each play one or more characters use a disguise to obtain or confirm a romantic attachment and each play uses disguise in a somewhat different manner. The course considers the French drama over four centuries through a coherent body of texts. As time allows, we will view films based on these plays and/or have brief performances of selected passages. Students are required to participate actively in this course (attendance, participation in class discussion, and text presentation). Students are also required to attend a performance of the University's Celebrity Series. Writing intensive.

LLC 444E - Italians Come to America: Representing Emigration and Immigration on Both Sides of the Atlantic

Credits: 4.00

Course is designed around the phenomenon of emigration from Italy to the United States over the last century or so, with particular attention to the time period between the end of the nineteenth century and the mid-twentieth century. While core media under examination are literature and film, we also draw on historical, anthropological, political and sociological readings to help us consider the many issues involved.

LLC 450 - Film and Communism

Credits: 4.00

Examines Communist mythology from its birth to its deconstruction through film. Particular attention is focused on the instructive nature of Soviet film (1917-1991) and the cultural idioms used in this medium, but the course also examines Liberation Cinema and leftist filmmaking in the West. Films, readings, lectures, discussion. No prerequisites. Special fee.

LLC 503 - Intermediate Language Study I

Credits: 4.00

Generic language course. Review of grammar with emphasis on listening comprehension, speaking, reading, and writing. Increasing attention to contemporary cultural texts of the given language. Prereq: LLC 401-402 or equivalent or by permission of instructor. Satisfies foreign language requirement. Lab and films. Special fee.

LLC 504 - Intermediate Language Study II

Credits: 4.00

Generic language course. Review of grammar with emphasis on listening comprehension, speaking, reading, and writing. Increasing attention to contemporary cultural texts of the given language. Prereq: LLC 503 or permission. Satisfies foreign language requirement. Lab and films. Special fee.

LLC #540 - Film History

Credits: 4.00

Examines the historical development of film from a global perspective and the emergence of national cinemas as well as the cross-cultural influences that have produced the modern transnational film industry. Special fee.

LLC 642 - Theory and Practice of Translation

Credits: 4.00

This course is designed both as an introduction to various theories and philosophies of translation and as

an intensive workshop on different types of translation (literary, technical, professional, business, and health related, etc.). Translation is both a simple matter of transferring content and an intensely complex process of adapting linguistic, tonal, and cultural components of communication. The course works extensively on the craft of translation while developing detailed analyses of the theoretical and philosophical implications of choices made. Students complete various translation exercises and develop a significant final project. It is open to students at different levels of language ability but requires at least an intermediate competency. Students work at their own level. Taught in English. Prereq: Intermediate language or permission.

LLC 791 - Methods of Foreign Language Teaching

Credits: 4.00

Objectives, methods and techniques in teaching foreign languages from elementary grades through college. Discussion, demonstration, preparation of instructional materials, microteaching of the language skills, including developments in computer-aided instruction. Special fee.

LLC XXX - Special message place holder

Credits:

Latin

LATN 401 - Elementary Latin I

Credits: 4.00

Elements of grammar, reading of simple prose. (No credit for students who have had two or more years of Latin in secondary school; however, any such students whose studies of Latin have been interrupted for a significant period of time should consult the section supervisor about possibly receiving credit.) Special fee.

LATN 402 - Elementary Latin II

Credits: 4.00

See description for LATN 401.

LATN 403 - Review of Latin

Credits: 4.00

Intensive review of Latin grammar and vocabulary. Preparation for LATN 503. Designed primarily for those whose study of Latin has been interrupted for a year or more and for those who have had only two years of high school Latin. Special fee.

LATN 501 - Review of Latin

Credits: 4.00

Intensive review of Latin grammar and vocabulary. Designed primarily for those whose study of Latin has been interrupted for a year or more and for those who have had only two years of high school Latin. Special fee.

LATN 503 - Intermediate Latin I

Credits: 4.00

Review. Readings from Cicero, Caesar, Sallust, Livy, Catullus, Horace, Ovid, Plautus, Terence, and Seneca. Prereq: LATN 402 or equivalent. Special fee.

LATN 504 - Intermediate Latin II

Credits: 4.00

See description for LATN 503.

LATN 595 - Directed Reading

Credits: 2.00 or 4.00

Independent study of a classical or medieval Latin author. May be repeated to a maximum of 8 credits. Prereq: LATN 503, 504, or equivalent. Special fee. Cr/F.

LATN 596 - Directed Reading

Credits: 2.00 or 4.00

See description for LATN 595. Cr/F.

LATN 605 - Readings in Latin Literature

Credits: 4.00

Reading and analysis of major works of Latin literature. Focus on improving translation skills and comprehension of Latin grammar and Latin language. Introduction to the critical analysis of Latin literature in the context of Roman civilization and culture. Prereq: Latin 504 or equivalent with a grade of C or better. Satisfies foreign language requirement. Special fee.

LATN 606 - Readings in Latin Literature

Credits: 4.00

See description for LATN 605. Special fee.

LATN 631 - Latin Prose Composition

Credits: 4.00

Grammar review; study of Latin prose style; English to Latin translation. Prereq: permission. Special fee.

LATN 632 - Latin Prose Composition

Credits: 4.00

See description for LATN 631.

LATN 752 - Cicero and the Roman Republic

Credits: 4.00

Prereq: permission. Special fee. Writing intensive.

LATN 753 - Advanced Studies in the Literature of the Golden Age

Credits: 4.00

A) Lucretius; B) Catullus; C) Caesar; D) Sallust; E) Vergil; F) Horace; G) Tibullus; H) Propertius; I) Ovid; J) Livy. Major Roman authors from the dictatorship of Sulla to the death of Augustus. Prereq: permission. Special fee. Writing intensive.

LATN 754 - Advanced Studies in the Literature of the Golden Age

Credits: 4.00

See description for LATN 753. Writing intensive.

LATN 755 - Advanced Studies in the Literature of the Silver Age

Credits: 4.00

A) Seneca the Younger; B) Persius; C) Petronius; D) Lucan; E) Statius; F) Quintilian; G) Martial; H) Juvenal; I) Tacitus; J) Pliny the Younger. Major Roman authors from the reign of Nero to the death of Trajan. Prereq: permission. Special fee. Writing intensive.

LATN 756 - Advanced Studies in the Literature of the Silver Age

Credits: 4.00

See description for LATN 755. Writing intensive.

LATN 795 - Special Studies

Credits: 4.00

A) Minor Authors of the Republic; B) Plautus; C) Terence; D) Minor Authors of the Empire; E) Suetonius; F) Latin Church Fathers; G) Medieval Latin; H) Advanced Latin Composition; I) Introduction to Classical Scholarship; J) Latin Epigraphy; K) Italic Dialects; L) Comparative Grammar of Greek and Latin; M) Roman Law. Topics selected by instructor and student in conference. Prereq: permission. Special fee. Writing intensive.

LATN 796 - Special Studies

Credits: 4.00

See description for LATN 795. Writing intensive.

Life Sciences & Agriculture

LSA 400 - Freshmen Seminar

Credits: 1.00

Assistance to the undeclared student in identifying a major within the College of Life Sciences and Agriculture, including the biological, natural, and social sciences. The goal of this seminar is to support students in developing a sound academic program and assist them in making a successful transition from high school to college. The seminar also covers strategies for being a successful college student. Guest speakers from departments and programs lead discussions on career opportunities. Required for all first-semester LSA undeclared students. Cr/F.

LSA 401 - College Research Experience

Credits: 1.00 to 4.00

Hands-on research experience for high school students and UNH freshmen under the supervision of a College of Life Sciences and Agriculture (COLSA) faculty member. This independent-study course will introduce students to the research process and require them to undertake a research project that will involve laboratory and/or field work. Before a student can register for the course, he/she must meet with a COLSA faculty member who will serve as mentor and supervisor, and the two of them must have a formal agreement on the specific research activities that the student must carry out. Prereq: Permission. May be repeated up to a maximum of 8 credits.

LSA 699 - Special Topics

Credits: 1.00 to 2.00

Seminar on new or specialized topics that involve two or more disciplines in the College of Life Sciences and Agriculture and are not covered in regular course offerings. May be repeated to a maximum of 4 credits.

Linguistics

LING 405 - Introduction to Linguistics

Credits: 4.00

Overview of the study of language: universal properties of human language, Chomsky's innateness hypothesis, language acquisition in children, dialects and language variation, language change. Includes an introduction to modern grammar (phonology, syntax, and semantics) and to scientific linguistic methodology. (Also offered as ENGL 405.)

LING 405H - Honors/Introduction to Linguistics

Credits: 4.00

See description for LING 405.

LING #444B - Secret Lives of Words

Credits: 4.00

Using problem and inquiry-based pedagogy, this class delves into the ways in which new words are coined, how they become established or die, and how they change over their natural lives. Touching upon topics in philosophy (the nature of meaning), theoretical linguistics (morphology, sociolinguistics), and lexicography, it introduces students to both the methods of text-based analysis and field-based research. Topics include word formation; the history of vocabulary in English; the making of dictionaries; slang, jargon, and taboo language. Writing intensive. (Also listed as ENGL 444B.)

LING 444F - Language Matters in America

Credits: 4.00

Students engage in active research to understand how we use language to construct and interpret identity. Linguistic patterns typical of groups of various types (regional, ethnic, gender, age, communities of shared practice, etc.) are explored as are issues related to education, language use in politics and marketing, ESL, ASL, and African-American English. Course engages students in inquiry-based learning: determining what questions are important in the field, figuring out how to find answers, pursuing these answers, and interpreting what you find out, following established practices in the social sciences. Writing intensive. (Also listed as ENGL 444F.)

LING 605 - Intermediate Linguistic Analysis

Credits: 4.00

Analysis and problem solving in phonology, morphology, and syntax using data from many languages. Emphasis is both practical (learning how to describe grammar and sound system of a language) and theoretical (understanding languages' behavior). Prereq: LING/ENGL 505, or permission. (Also offered as ENGL 605.)

LING 620 - Applied Experience in Linguistics

Credits: 1.00 to 4.00

Students who have an opportunity for appropriate career-oriented work experience may arrange with a faculty sponsor to add an academic component. The work must be related to the linguistics major, and nonacademic employers must normally be an established organization approved by Career Services. Research and writing required in addition to the job experience. Registration requires permission of employer, faculty sponsor, and major adviser. May be repeated with permission to a maximum of 8 credits. Up to 4 credits may count toward the linguistics major requirements, with permission of the program coordinator. Prereq: LING 505; permission. Cr/F.

LING 695 - Senior Honors

Credits: 4.00

Open to senior LING majors who, in the opinion of the department, have demonstrated the capacity to do superior work. Prereq: permission.

LING 717 - World Englishes

Credits: 4.00

Study of the forms and functions of Englishes in various parts of the world and the linguistic, sociolinguistic, literary, pedagogical, and political implications of the worldwide spread of the language. Topics include language change, language policies, language and power, language and culture, language and identity, literary creativity, and linguistic imperialism. (Also offered as ENGL 717.)

LING 719 - Sociolinguistics Survey

Credits: 4.00

How language varies according to the characteristics of its speakers: age, sex, ethnicity, attitude, time, and class. Quantitative analysis methods; relationships to theoretical linguistics. Focus is on English, but some other languages are examined. Prereq; LING 505 or permission. (Also offered as ENGL 719.)

LING 779 - Linguistic Field Methods

Credits: 4.00

Study of a non-Indo-European language by eliciting examples from an informant, rather than written descriptions of the language. Students learn how to work out the grammar of a language from raw data. Prereq: ENGL/LING 505. (Also offered as ENGL 779.) (Not offered every year.) Writing intensive.

LING 790 - Special Topics in Linguistics Theory

Credits: 4.00

Advanced course on a topic chosen by the instructor. Inquire at the English department office for a full course description each time the course is offered. Topics such as word formation, dialectology, linguistic theory, and language acquisition, history of linguistics, language and culture, cross-disciplinary studies relating to linguistics. Barring duplication of subject, may be repeated for credit. (Also offered as ENGL 790.) Writing intensive.

LING 793 - Phonetics and Phonology

Credits: 4.00

Sound system of English and of other languages viewed from the standpoint of modern linguistic theory, including the following topics: the acoustic and articulatory properties of speech sounds, the phonemic repertoires of particular languages, phonological derivations, and prosodic phenomena such as stress and intonation. Prereq: a basic linguistics course or permission. (Also offered as ENGL 793.)

LING 794 - Syntax and Semantic Theory

Credits: 4.00

Relationship of grammar and meaning viewed from the standpoint of modern linguistic theory. Emphasis on the syntax and semantics of English, with special attention to the construction of arguments for or against particular analyses. Prereq: a basic linguistics course or permission. (Also offered as ENGL 794.) Writing intensive.

LING 795 - Independent Study

Credits: 1.00 to 4.00

A) Synchronic Linguistics, B) Diachronic Linguistics, C) Linguistic Theory. For students showing a special aptitude for linguistics who desire to pursue a line of inquiry for which no appropriate course is offered. All requests must be forwarded by the faculty sponsor to the director of the Inter-departmental Linguistics Committee.

LING 796 - Independent Study

Credits: 1.00 to 4.00

See description for LING 795.

Management

MGT 444 - Meaning of Entrepreneurship

Credits: 4.00

This course explores the idea and ideals of entrepreneurship, the creating of value through individual initiative, creativity, and innovation. The idea of entrepreneurship is of significant relevance in the highly dynamic and competitive 21st century global economy. It is an idea that is important for students to understand and to critically consider and apply. The course encourages the development of multiple views of entrepreneurship, and uses a broad, not just business, approach to the study as it engages students in the subject matter. Open to freshmen from all majors. (Also offered as DS 444 in alternating terms). Writing intensive.

MGT 580 - Introduction to Organizational Behavior

Credits: 4.00

Application of behavioral science concepts to work settings in profit and nonprofit organizations. Individual behavior, interpersonal relations, work groups, relations among groups studied in the context of organizational goals and structure. Experiential focus. For non-business administration majors and minors. No credit for students who have had ADMN 611. Prereq: ECON 401 or 402.

MGT 614 - Organizational Leadership and Structure

Credits: 4.00

How structural characteristics in an organization (e.g., the design of roles, reporting relationships, coordinating mechanisms, communication systems, and processes, etc.) affect whether leader actions and choices enable or prevent high performance. An open systems framework is used to assess how reactions to change occurring inside and outside an organization determine whether individuals, groups, and organizations position themselves to adapt, grow and develop, or decline. Examination of individual roles in organizations. Prereq: ADMN 611.

MGT 647 - Business Law I

Credits: 4.00

Law of contracts, agency, sales, negotiable instruments, real and personal property, partnership and corporations, with application of the Uniform Commercial Code. Prereq: Junior standing, ECON 401, ECON 402, and ADMN 420.

MGT 701 - Business, Government, and Society

Credits: 4.00

Managerial problem solving and decision making relative to economic, ethical, legal, political, social, and technological aspects of an organization's environment. Case discussion, stakeholder analysis, managerial values and ethics, and social issues management are important course components. Open to WSBE majors only. Prereq: ADMN 611; at least two of ADMN 601, 640, and 651.

MGT 713 - Leadership Assessment and Development

Credits: 4.00

Activities and exercises to help students determine their ideal job upon graduation as well as their career goals for the next three to five years. Students learn a matrix of key leadership behaviors and skills that distinguish high-performing managers and executives. Each student's behavior is assessed using this model so that students can determine the leadership behaviors and skills they most need to develop to meet their early career goals. Faculty assist students in developing a personal leadership development plan to focus professional energy, efforts, and achievements over the next three to five years. Prereq:

ADMN 611.

MGT 732 - Exploration in Entrepreneurial Management

Credits: 4.00

Examines the management of change and innovation, especially the role of entrepreneur in managing new ventures. Uses case analysis, guest speakers, and business plan preparation to study the characteristic behavioral, organizational, financial, and marketing problems of entrepreneurs and new enterprises.

Prereq: ADMN 601, 611, and 651. Writing intensive.

MGT 742 - Internship in Entrepreneurial and Management Practice

Credits: 4.00

Involves working for leading companies and dynamic entrepreneurs, as well as classroom instruction. The priority experiential, real-world, and real-time learning in the high growth environment of entrepreneurial ventures. Focuses on several topic areas, including venture capital. Prereq: senior standing; permission. (Also listed as DS 742.

MGT 755 - International Management

Credits: 4.00

Develops an understanding of international ventures and partnerships from the viewpoint of management, leadership, human resource management, and organizational structure and strategy. Emphasizes the impact of culture on business practices and on interpersonal skills and global perspectives needed for personal effectiveness in international and multicultural environments. Prereq: ADMN 611. Writing intensive.

MGT 798 - Topics

Credits: 4.00

Special topics; may be repeated. Prereq: permission.

MGT 798W - Topics

Credits: 4.00

Special topics; may be repeated. Prereq: permission. Writing intensive.

Marketing

MKTG 550 - Survey of Marketing

Credits: 4.00

Focuses on marketing as the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational objectives. For non-business administration majors and minors. No credit for students who have had ADMN 651. Prereq: ECON 401 or 402.

MKTG 598 - Topics in Marketing

Credits: 1.00 to 4.00

Special topics covering a variety of marketing principles. Topics may include promotion and advertising; retail and retail management; sales and sales management. May be repeated up to 12 credits.

MKTG 752 - Marketing Research

Credits: 4.00

Examines marketing information management and decision-making. MR is an essential business process and an integral part of marketing management, a process by which marketing information is collected, analyzed, disseminated, and acted upon. Course provides the tools, techniques, data sources and research approaches commonly used for market research and analysis. Hands-on analysis of marketing data sets is provided by using leading statistical software packages. Prereq: ADMN 651 or equivalent.

MKTG 753 - Consumer/Buyer Behavior

Credits: 4.00

Covers concepts, models, and theories from the behavioral sciences applied to consumer decision making and purchasing behavior. Examines consumer behavior from economic, psychological, sociological, and anthropological perspectives. Topic coverage includes discussion of marketing strategies and tactics to influence consumer choice. Prereq: ADMN 651. Writing intensive.

MKTG 754 - Retail Management

Credits: 4.00

Analysis of managerial problems in retailing establishments. Focuses on operational problems, retail store organization, location analysis, buying and inventory management, retail financial management, and selling and sales promotion. Other areas include environmental effects on retailing, the formulation of retail strategy, human resource issues, and customer service. Prereq: ADMN 651.

MKTG 756 - International Franchising

Credits: 4.00

Designed to provide an understanding of franchising as a system of distribution and business expansion. Franchising is studied from both the perspectives of the franchise and the franchiser. In addition, economic, financial, and legal issues associated with franchising are covered. By the end of the course, students have skills and sources of information that permit sound assessment of the business opportunities available in franchising. Prereq: ADMN 651 or HMGT 600. (Also offered as HMGT 756.)

MKTG 757 - Integrated Marketing Communication

Credits: 4.00

Provides balanced coverage of all marketing communication tools: advertising, sales promotion, public relations, direct marketing, personal selling, POP, packaging, sponsorships, licensing, customer service. Emphasizes the integration of these tools to send target audiences a consistent, persuasive message that

promotes the organization's goals. Prereq: ADMN 651.

MKTG 760 - International Marketing

Credits: 4.00

Environmental factors affecting international trade: culture and business customs, political and legal factors and constraints, economic and technological development, and the international monetary system. Integration of these with the marketing management functions of market research and segmentation; product, promotion, distribution, and pricing decisions. Prereq: ADMN 651.

MKTG 762 - Marketing Workshop

Credits: 4.00

Integrative study of a real marketing situation in a business, nonprofit institution, or government agency. Student teams identify problem, collect appropriate data, suggest alternative solutions, and submit a recommended course of action. Prereq: senior standing; at least two of MKTG 752, 753, and 763. Writing intensive.

MKTG 763 - Market Opportunity Analysis

Credits: 4.00

Introduces students to the analysis of the business environment in which a company operates and provides key inputs into strategic marketing planning and decision-making. Students learn the process, concepts, and techniques commonly used in the identification, assessment, and forecasting of market opportunities. Prereq: ADMN 651. Pre- or Coreq: ADMN 640.

MKTG 764 - New Product Development

Credits: 4.00

Tactical and strategic issues concerned with the development and marketing of product and service innovations. Equips students with the concepts, tools, and approaches useful in the development, management, and marketing of products and services. Provides an integrated experience of the process of uncovering customer problems, understanding these problems, and providing superior solutions. Prereq: MKTG 651 or equivalent.

MKTG 798 - Topics

Credits: 4.00

Special topics; may be repeated. Prereq: a basic marketing course and permission.

MKTG 798W - Topics

Credits: 4.00

See description for MKTG 798. Writing intensive.

Materials Science

MS 401 - Science of Stuff

Credits: 4.00

Materials Science is a relatively new and fast growing field that studies all types of materials, including metals, ceramics, polymers, semiconductors, and composites. Material Science explores how stuff is put together, how to change stuff and make it better, the properties and applications of stuff, and even how to make totally brand new stuff. This course explores materials from various topic areas, including sports, forensics, medicine and health, fashion, architecture and construction, music and art, food and transportation from the perspective of materials science. Students explore additional materials independently as well as practice the process of science through simple experimentation and data analysis. Special fee.

MS 762 - Electronic Materials Science

Credits: 4.00

Provides students with a foundation in the materials science of modern electronic devices. Examples are taken primarily from the fields of semiconductor electronics and nanotechnology. Prereq: PHYS 408, MATH 527.

Mathematics

MATH 301 - Elementary Math I

Credits: 4.00

Beginning algebra including integer operations, solving linear equations, graphing linear functions, solving linear inequalities, systems of linear equations, polynomials, rational expressions and equations, and exponents and radicals. May not be taken for credit toward a bachelor's degree.

MATH 302 - Elementary Math II

Credits: 4.00

Review of elementary algebra, exponents, polynomials, factoring, rational exponents, and absolute value. Solving linear and quadratic equations and inequalities; systems of equations; radical equations. Linear functions and related notions; quadratic functions. May not be taken for credit toward a bachelor's degree. Prereq: MATH 301 or the equivalent.

MATH 400 - Freshman Seminar

Credits: 1.00

A seminar experience that presents a mathematical culture associated with first-year college mathematics, including the ideas of abstraction, theorem and proof, and that provides a perspective of the diversity of mathematical areas of research and their interrelationships. Emphasis is on reading and writing mathematics. Cr/F.

MATH 418 - Analysis and Applications of Functions

Credits: 4.00

Analysis and applications of algebraic and transcendental functions, with special emphasis on exponential, logarithmic, and trigonometric functions. Graphical analysis. Written projects are required on some or all of the following topics: rates of change, optimization, logarithmic or exponential modeling, and trigonometric functions. Intended for students planning to take MATH 425. Prereq: MATH 302 or equivalent. Not offered for credit if credit is received for MATH 424 or MATH 425.

MATH 420 - Finite Mathematics

Credits: 4.00

Topics selected from probability, systems of linear equations, matrix algebra, linear programming, mathematics of finance. Not a preparation for calculus. Prereq: MATH 302 or the equivalent. Not offered for credit to mathematics majors.

MATH 424A - Calculus for Social Sciences

Credits: 4.00

Real-valued functions and their graphs; derivatives and their applications; anti-derivatives and areas; exponentials and logarithms; introduction to multivariable calculus and partial derivatives. Primarily intended for majors in College of Liberal Arts and the Whittemore School of Business and Economics. Prereq: MATH 418 or equivalent. (Not offered for credit to CEPS majors; not offered for credit if credit is received for MATH 425.) Students enrolling in MATH 424 are required to take a competency evaluation on algebra during the first week of the semester. Those doing unsatisfactory work will be required to take MATH 418 before enrolling in MATH 424 or to complete review assignments in the Mathematics Center (MaC) concurrently with MATH 424. Students who desire a two-semester calculus course are strongly advised to take MATH 425. Those students who successfully complete MATH 424A and subsequently wish to continue their study of mathematics with MATH 426 are required to complete successfully a supplementary module and examination on trigonometric content.

MATH 424B - Calculus for Life Sciences

Credits: 4.00

Real-valued functions and their graphs; derivatives and their applications; anti-derivatives and areas; exponentials and logarithms; introduction to multivariable calculus and partial derivatives. Primarily intended for majors in College of Life Sciences and Agriculture. Prereq: MATH 418 or equivalent. (Not offered for credit to CEPS majors; not offered for credit if credit is received for MATH 425.) Students enrolling in MATH 424 are required to take a competency evaluation on algebra during the first week of the semester. Those doing unsatisfactory work will be required to take MATH 418 before enrolling in MATH 424B or to complete review assignments in the Mathematics Center (MaC) concurrently with MATH 424. Students who desire a two-semester calculus course are strongly advised to take MATH 425. Those students who successfully complete MATH 424B and subsequently wish to continue their study of mathematics with MATH 426 are required to complete successfully a supplementary module and examination on trigonometric content.

MATH 425 - Calculus I

Credits: 4.00

Calculus of one variable covering limits, derivatives of algebraic, trigonometric, exponential, and logarithmic functions; applications include curve sketching, max-min problems, related rates, and volume and area problems. Prereq: completing MATH 418 with a grade of C or better or qualifying with the placement evaluation. (Not offered for credit if credit is received for MATH 424.)

MATH 425H - Honors/Calculus I

Credits: 4.00

See description for MATH 425. Enrollment in MATH 425H requires concurrent enrollment in PHYS 407H.

MATH 426 - Calculus II

Credits: 4.00

Second course in calculus of one argument, techniques and applications of integration, polar coordinates, and series. Prereq: MATH 425.

MATH 426H - Honors/Calculus II

Credits: 4.00

See description for MATH 426. Enrollment in MATH 426H requires concurrent enrollment in PHYS 408H.

MATH 439 - Statistical Discovery for Everyone

Credits: 4.00

Introduces the framework and concepts for learning with data. Emphasis on statistical discovery in everyday life and on drawing valid conclusion from data. Topics include: good and bad data, data ethics, how to conduct a valid survey, how to describe a population distribution; when to believe a poll; how to design an experimental study; how to avoid ambiguous results caused by "lurking" variables; how to make inference about an entire population based on a sample; how to describe relationships among variables; an understanding of the question of causation and chance in everyday life and in scientific studies, as well as the use and misuse of statistics in explaining what is statistical significance. This course has an activity-based learning component with lab exercises using statistical software for calculations without assuming a calculus background. The course may be used as a preparation for a more technical introductory statistics course. Not offered for credit if credit is received for ADM 430, ADMN 420, BIOL 528, EREC 525, HHS 540, MATH 539, MATH 644, PSYC 402, SOC 502. Science and Engineering students should take MATH 539 or MATH 644 according to their programs.

MATH 525 - Linearity I

Credits: 6.00

Examines the fundamental role that linear models play in science and engineering; and the role of linearization in understanding nonlinear phenomena. Models are considered along several conceptual axes: discrete to continuous, one-dimensional to multidimensional, and static to dynamic, with an emphasis on the former. Mathematical areas of coverage include matrix algebra, concepts from calculus of several variables, difference equations, and linear transformations. Prereq: MATH 426, permission. Lab.

MATH 526 - Linearity II

Credits: 6.00

Continuation of study of linear models and the process of linearization begun in MATH 525, with an emphasis on models of dynamic phenomena. Additional mathematical areas of coverage include differential equations, eigenvalue and eigenvector analysis, phase plane analysis, and additional concepts from vector calculus. Prereq: MATH 525, permission. Lab.

MATH 527 - Differential Equations with Linear Algebra

Credits: 4.00

Fundamental methods of solving first-order equations, essentials of matrix algebra; higher-order linear equations, and linear systems; series solutions; Laplace transforms; selected applications. Prereq: MATH 426.

MATH 528 - Multidimensional Calculus

Credits: 4.00

Partial differentiation; composite functions and chain rules; maximum and minimum; transformations; vector algebra; vector functions; gradient, divergence, and curl; curves and surfaces; multiple, line, and surface integrals; divergence, Green's and Stoke's theorem. Prereq: MATH 426.

MATH 531 - Mathematical Proof

Credits: 4.00

Introduces reading and writing proofs in mathematics. The basic language of mathematics common to all branches of the subject, especially set theory and basic logic. Prereq: MATH 425; or permission. Writing intensive.

MATH 532 - Discrete Mathematics

Credits: 4.00

Counting principles (including permutations, combinations, pigeonhole principle, inclusion-exclusion principle); big-O relation; graphs, trees, and related topics. Prereq: MATH 531.

MATH 539 - Introduction to Statistical Analysis

Credits: 4.00

A first course introducing concepts of probability and scientific methods for data analysis. Exploratory data analysis, survey sampling, probability, discrete and continuous distributions, confidence intervals, hypothesis testing, comparing samples, linear regression, analysis of variance. Statistical software is used. Prereq: MATH 425; or permission. Offered primarily for mathematics majors at the sophomore level; engineering majors are urged to take MATH 644. Not offered for credit if credit is received for MATH 644.

MATH 545 - Introduction to Linear Algebra and Mathematical Proof

Credits: 4.00

Introduction to mathematical writing and proof in the context of basic linear algebra. Designed to reinforce ideas seen throughout the mathematics curriculum. Centered on an intense study of vector spaces and linear systems, beginning with a brief study of linear system equations, progressing to a discussion of linear transformation and vector spaces. (Not offered for credit if credit is received for MATH 645.) Prereq: MATH 426. Writing intensive. (Offered in the fall semester only.)

MATH 601 - Exploring Mathematics for Teachers I

Credits: 4.00

Provides prospective elementary teachers with the opportunity to explore and master concepts involving number systems and operations, data analysis and probability. Mathematical reasoning, problem solving, and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. Prereq: EDUC 500. (Not offered for credit if credit is received for MATH 621, 623, 721, and/or 723; not offered for credit to CEPS majors.)

MATH 602 - Exploring Mathematics for Teachers II

Credits: 4.00

Provides prospective elementary teachers with the opportunity to explore and master concepts involving geometry, measurement, and algebraic thinking. Mathematical reasoning, problem solving, and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. Prereq: EDUC 500. (Not offered for credit if credit is received for MATH 621, 622, 721, and/or 722; not offered for credit to CEPS majors.)

MATH 619 - Historical Foundations of Mathematics

Credits: 4.00

Historical development of number theory, geometry, probability, algebra, and analysis. Study of the significant mathematical contributions to these topics made by prominent mathematicians spanning several historical periods. Prereq: MATH 531 or 545.

MATH 621 - Number Systems for Teachers

Credits: 4.00

Problem solving; counting and set concepts, number systems (whole numbers, integers, rational, and real numbers); number theory; estimation and mental calculation techniques; and applications requiring calculators and computers. Manipulatives and models are used in a lab setting to illustrate the concepts and properties of the number systems and teach number sense. (Not offered for credit to mathematics majors, except those in elementary or middle school options of the B.S. in Mathematic Education degree program.) Offered in alternate years in the fall semester. Prereq: permission.

MATH 622 - Geometry for Teachers

Credits: 4.00

Properties of plane and space figures; tessellations; symmetry; LOGO computer language; nonstandard, English, and metric units of measure; area and perimeter; volume and surface area; estimations and approximations of measurements; constructions; congruence and similarity mappings; problem solving using geometric and algebraic skills, and applications requiring calculators and computers. Manipulatives and models are used in a lab setting to illustrate concepts and properties of geometry. (Not offered for credit to mathematics majors, except those in the elementary or middle school options of the B.S. in Mathematic Education degree program.) Offered in alternate years in the spring semester following MATH 621. Prereq: MATH 621 or permission.

MATH 623 - Topics in Mathematics for Teachers

Credits: 4.00

Logic (valid and invalid forms of reasoning); descriptive statistics (graphs, measures of central tendency, measures of variation); inferential statistics (samplings, distributions, measures of relative standing, simulations); probability (experimental, geometrical, and theoretical); permutations and combinations; probability simulations; problem solving using skills from statistics and probability; mathematical

connections and communication review of computer software; and applications requiring calculators and computers. (Not offered for credit to mathematics majors, except those in the elementary or middle school options of the B.S. in Mathematics Education degree program.) Offered in alternate years in the fall semester following MATH 622. Prereq: MATH 621 of permission.

MATH 624 - Analysis for Secondary School Teachers

Credits: 4.00

Examines concepts from calculus and pre-calculus mathematics with an emphasis on connecting and logically refining the concepts of function, limit, sequences, series, and probability. Includes a deeper analysis of problems and topics drawn from secondary school mathematics with the kind of mathematical knowledge and sophistication that the student has gained from other collegiate mathematics courses. Proofs for many of the theorems that are typically introduced in a non-rigorous fashion in calculus are studied. Prereq: MATH 425, 545 or equivalent, EDUC 500 or by permission. Offered in alternate years in the spring semester following MATH 623.

MATH 644 - Statistics for Engineers and Scientists

Credits: 4.00

Introduces the design of controlled experiments and the collection and analysis of scientific data. Use of a statistical software package is an integral part of the course; interpreting and drawing conclusions from standard software output is emphasized. Graphical data analysis, statistical process control, regression and correlation, multifactor experimental designs, confidence intervals, hypothesis testing. Not offered for credit if credit is received for MATH 539. Prereq: MATH 426.

MATH 645 - Linear Algebra for Applications

Credits: 4.00

Fundamental notions of vector space theory, linear independence, basis, span, scalar product, orthogonal bases. Includes a survey of matrix algebra, solution of systems linear equations, rank, kernel, eigenvalues and eigenvectors, the LU- and QR-factorizations, and least squares approximation. Selected applications in mathematics, science, engineering and business. Prereq: MATH 426. (Not offered for credit if credit is received for MATH 545 or MATH 762.)

MATH 646 - Introduction to Partial Differential Equations

Credits: 4.00

Introduces the solution of partial differential equations. Models arising from initial-boundary-value problems of mathematical physics and Sturm-Liouville problems are examined; solution techniques include separation of variables, Bessel functions, series expansions by orthogonal functions, and numerical methods. Prereq: CS 410 or 415; MATH 527; 528; 645; /or permission.

MATH 647 - Complex Analysis for Applications

Credits: 4.00

Complex numbers, analytic functions, Cauchy-Riemann equations, conformal mapping, contour integration, Cauchy's integral formula, infinite series, residue calculus, Fourier and Laplace transforms. Prereq: MATH 528. (Not offered for credit if credit is received for MATH 788.)

MATH 656 - Introduction to Number Theory

Credits: 4.00

Unique factorization, arithmetic functions, linear and quadratic congruence's, quadratic reciprocity law, quadratic forms, introduction to algebraic numbers. Prereq: MATH 531. Offered in alternate years.

MATH 657 - Geometry

Credits: 4.00

Advanced approach to fundamental properties of Euclidean and other geometries. Prereq: MATH 531.

Writing intensive.

MATH 658 - Topics in Geometry

Credits: 4.00

Topics selected from among projective geometry, finite geometrics, convexity, transformational geometry, non-Euclidean geometry, and other areas of elementary geometry within the framework of modern mathematics. Prereq: MATH 657. Offered in alternate years.

MATH 696 - Independent Study

Credits: 1.00 to 4.00

Individual projects of study developed by the student and a faculty sponsor. Intended for students with superior scholastic achievement. May be repeated up to 8 credits. May be taken as writing intensive. Prereq: a written proposal, including goals and assessment, endorsed by a faculty sponsor and approved by the department chairperson.

MATH 696W - Independent Study

Credits: 1.00 to 4.00

See description for MATH 696. Writing intensive.

MATH 700 - Introduction to Mathematics Education

Credits: 4.00

General background information about mathematics education, such as theories of learning and teaching mathematics, mathematics curricula, classroom management, and techniques for the teaching and learning of mathematics that are common to all levels of mathematics education K-12. Prereq: MATH 426 and EDUC 500; or permission.

MATH 701 - Exploring Mathematics for Teachers I

Credits: 4.00

Provides prospective elementary teachers with the opportunity to explore and master concepts involving number systems and operations, data analysis and probability. Mathematical reasoning, problem solving and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. Credit offered only to M.Ed. and M.A.T., certificate-only students, and in-service teachers. Prereq: EDUC 500. (Not offered for credit if credit is received for MATH 621, 623, 721, and/or 723.)

MATH 702 - Exploring Mathematics for Teachers II

Credits: 4.00

Provides prospective elementary teachers with the opportunity to explore and master concepts involving geometry, measurement, and algebraic thinking. Mathematical reasoning, problem solving and the use of appropriate manipulatives and technology are integrated throughout the course. Readings, class discussions, and assignments will focus on mathematics content as well as applicable theories of learning, curriculum resources, and state and national recommendations. The course models instructional techniques that can be adapted to the elementary curricula. Credit offered only to M.Ed. and M.A.T., certificate-only students, and in-service teachers. Prereq: EDUC 500. (Not offered for credit if credit is received for MATH 621, 622, 721, and/or 722.)

MATH 703 - Teaching of Mathematics, K-6

Credits: 4.00

Methods of teaching mathematics at the elementary school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment ; instructional formats; teaching

reading and writing in mathematics. Prereq: MATH 621 (or MATH 601, MATH 701, MATH 721) and MATH 700; or permission.

MATH 708 - Teaching Middle School Mathematics

Credits: 4.00

Methods of teaching mathematics at the middle school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 700; or permission. Offered in alternate years in the spring semester.

MATH 709 - Teaching of Mathematics, 7-12

Credits: 4.00

Methods of teaching content at the secondary school level; uses of technology, manipulatives, models, and diagrams; developing unit and lesson plans; assessment; instructional formats; teaching reading and writing in mathematics. Prereq: MATH 700; or permission. Offered in alternate years in the spring semester.

MATH 721 - Number Systems for Teachers

Credits: 4.00

Problem solving; counting and set concepts, number systems (whole numbers, integers, rational, and real numbers); number theory; estimation and mental calculation techniques; and applications requiring calculators and computers. Manipulatives and models are used in a lab setting to illustrate the concepts and properties of the number systems. Credit offered only to M.Ed. and M.A.T., certificate-only students, and in-service teachers. Prereq: permission. Offered in alternate years in the fall semester.

MATH 722 - Geometry for Teachers

Credits: 4.00

Properties of two- and three-dimensional figures; tessellations; symmetry; nonstandard, English, and metric units of measure; area and perimeter; volume and surface area; estimations and approximations of measurements; constructions; congruence and similarity mappings; applications requiring calculators and computers. Manipulatives and models are used in a lab setting to illustrate concepts and properties of geometry. Credit offered only to M.Ed. and M.A.T., certificate-only students, and in-service teachers. Prereq: 721 or permission. Offered in alternate years in the spring semester following MATH 721.

MATH 723 - Topics in Mathematics for Teachers

Credits: 4.00

Descriptive statistics; inferential statistics; simulations; probability (experimental, geometrical, and theoretical); permutations and combinations; problem solving using skills from statistics and probability; applications requiring calculators and computers. Credit offered only to M.Ed. and M.A.T., certificate-only students, and in-service teachers. Prereq: 721 or permission. Offered in alternate years in the fall semester following MATH 722.

MATH 736 - Advanced Statistical Methods for Research

Credits: 4.00

An introduction to multivariate statistical methods, including principal components, discriminant analysis, cluster analysis, factor analysis, multidimensional scaling, and MANOVA. Additional topics include generalized linear models, general additive models, depending on the interests of class participants. The use of statistical software, such as JMP, S PLUS, or R, is fully integrated into the course. Prereq: MATH 739.

MATH 737 - Statistical Methods for Quality Improvement

Credits: 4.00

Introduces scientific data collection and analysis with an emphasis on industrial and service provider

applications. Topics include: descriptive and graphical statistical methods; confidence intervals and hypothesis testing; regression; ANOVA; statistical process control (SPC); failure modes and effects analysis (FMEA); Six-Sigma concepts and methods; introduction to Reliability; quality tools, MSA, and process capability studies; introduction to Lean methodology, such as 5S, Kaizen, and VSM. Use of a software package is an integral part of the course. Prereq: MATH 644.

MATH 739 - Applied Regression Analysis

Credits: 4.00

Statistical methods for the analysis of relationships between response and input variables: simple linear regression, multiple regression analysis, residual analysis and model selection, multi-collinearity, nonlinear curve fitting, categorical predictors, analysis of variance, analysis of covariance, examination of validity of underlying assumptions, logistic regression analysis. Emphasizes real applications with use of statistical software. Prereq: MATH 539 (or 644). Writing intensive.

MATH 740 - Design of Experiments I

Credits: 4.00

Course in design of experiments with applications to quality improvement in industrial manufacturing, engineering research and development, or research in physical and biological sciences. Experimental factor identification, statistical analysis and modeling of experimental results, randomization and blocking, full factorial designs, random and mixed effects models, replication and sub-sampling strategies, fractional factorial designs, response surface methods, mixture designs, and screening designs. Focuses on various treatment structures for designed experimentation and the associated statistical analyses. Use of statistical software. Prereq: MATH 539 (or 644); or permission.

MATH #741 - Survival Analysis

Credits: 4.00

Explorations of models and data-analytic methods used in medical, biological, and reliability studies. Event-time data, censored data, reliability models and methods, Kaplan-Meier estimator, proportional hazards, Poisson models, loglinear models. Suitable statistical software, such as SAS, JMP, S-Plus, or R, are used. Prereq: MATH 539 (or MATH 644). (Offered in alternate years.)

MATH 743 - Time Series Analysis

Credits: 4.00

An introduction to univariate time series models and associated methods of data analysis and inference in the time domain and frequency domain. Topics include: auto regressive (AR), moving average (MA), ARMA and ARIMA processes, stationary and non-stationary processes, seasonal ARIMA processes, auto-correlation and partial auto-correlation functions, identification of models, estimation of parameters, diagnostic checking of fitted models, forecasting, spectral density function, periodogram and discrete Fournier transform, linear filters, parametric spectral estimation, dynamic Fournier analysis. Additional topics may include wavelets and long memory processes (FARIMA) and GARCH Models. The use of statistical software, such as JMP, or R, is fully integrated into the course. Prereq: MATH 739. Offered in alternate years in the spring semester.

MATH 744 - Design of Experiments II

Credits: 4.00

A second course in design of experiments, with applications in quality improvement and industrial manufacturing, engineering research and development, research in physical and biological sciences. Covers experimental design strategies and issues that are often encountered in practice: complete and incomplete blocking, partially balanced incomplete blocking (PBIB), partial confounding, intra and inter block information, split plotting and strip plotting, repeated measures, crossover designs, Latin squares and rectangles, Youden squares, crossed and nested treatment structures, variance components, mixed effects models, analysis of covariance, optimizations, space filling designs, and modern screening design

strategies. Prereq: MATH 740; or permission.

MATH 745 - Foundations of Applied Mathematics

Credits: 4.00

Basic concepts and techniques of applied mathematics intended for graduate students and advanced undergraduates in mathematics, engineering, and the sciences. Topics include computational linear algebra, nonlinear differential equations, and partial differential equations. Methods examined include Fourier expansions and transforms, Laplace transforms, optimization techniques, linear spaces, eigenvalue analysis, Sturm-Liouville systems, numerical methods, conformal mapping, and residue theory. Prereq: MATH 527; 528 or equivalent.

MATH 746 - Foundations of Applied Mathematics

Credits: 4.00

See description for MATH 745.

MATH #747 - Introduction to Nonlinear Dynamics and Chaos

Credits: 4.00

The mathematics of chaos and nonlinear dynamics. Topics include linear and nonlinear systems of ordinary differential equations, discrete maps, chaos, phase plane analysis, bifurcations and computer simulations. Prereq: MATH 527; 528; 645.

MATH 753 - Introduction to Numerical Methods I

Credits: 4.00

Introduces mathematical algorithms and methods of approximation. Topics include a wide survey of approximation methods. Methods examined include polynomial interpolation, root finding, numerical linear algebra, numerical integration, and the approximation of differential equations. Included in each case is a study of the accuracy and stability of a given technique, as well as its efficiency. Prereq: MATH 426; CS 410.

MATH 754 - Introduction to Numerical Methods II

Credits: 4.00

Introduces the tools and methodology of scientific computing through the examination of interdisciplinary case studies from science and engineering. Emphasizes numerical approaches to solving linear systems, eigenvalue-eigenvector Problems and ordinary and partial differential equations problems are solved on various hardware platforms using a combination of application software and data visualization packages. Prereq: CS 410 or 415; MATH 527, 645, 753; or permission.

MATH 755 - Probability and Stochastic Processes with Applications

Credits: 4.00

Introduces the theory, methods, and applications of randomness and random processes. Probability concepts, random variable, expectation, discrete and continuous probability distributions, joint distributions, conditional distributions; stochastic processes, Markov chains, Poisson processes, moment-generating functions, convergence of random variables. Prereq: MATH 528 and 639 (or 644).

MATH 756 - Principles of Statistical Inference

Credits: 4.00

Introduces the basic principles and methods of statistical estimation and model fitting. One- and two-sample procedures, consistency and efficiency, likelihood methods, confidence regions, significance testing, Bayesian inference, nonparametric and re-sampling methods, decision theory. Prereq: MATH 755; or permission.

MATH 761 - Abstract Algebra

Credits: 4.00

Basic properties of groups, rings, fields, and their homomorphism's. Prereq: MATH 531 or 545. Writing intensive

MATH 762 - Linear Algebra**Credits:** 4.00

Vector spaces over arbitrary fields, linear transformations and their relationship with matrices, eigenvalues and eigenvectors, the rational and Jordan canonical forms for linear transformations. Prereq: MATH 761

MATH 767 - One-Dimensional Real Analysis**Credits:** 4.00

Theory of limits, continuity, differentiability, and integrability. Prereq: MATH 531, or 545. Writing intensive.

MATH 776 - Logic**Credits:** 4.00

Examination of the basic notions of soundness and completeness, first for sentential and then for propositional logic. Turning to the question of decision procedures for logical formulae, the concept of recursive function, which emerges in the work of Church and Turing, provides the essential link between logic and theory of computation. The course culminates with Godel's Incompleteness Theorems, which demonstrate the intrinsic limitations of the logical method. Prereq: MATH 531. Offered in alternate years.

MATH 784 - Topology**Credits:** 4.00

Open sets, closure, base, and continuous functions; connectedness, compactness, separation axioms, and metrizable. Prereq: MATH 531. Writing intensive.

MATH 788 - Complex Analysis**Credits:** 4.00

Complex functions, sequences, limits, differentiation and Cauchy-Riemann equations, elementary functions, Cauchy's theorem and formula, Taylor's and Laurent's series, residues, conformal mapping. Prereq: MATH 767. Not offered for credit if credit is received for MATH 647.

MATH 796 - Topics**Credits:** 1.00 to 4.00

New or specialized courses not covered in regular course offerings. Prereq: permission of instructor. May be repeated.

MATH 797 - Senior Seminar**Credits:** 4.00

Exploration of mathematical topics beyond the student's previous coursework in the seminar format. The course focus is on independent research, collaborative work and classroom engagement; oral presentations and written work are required. Prereq: senior standing.

MATH 798 - Senior Project**Credits:** 4.00

Students work either individually or as a group under the direction of a faculty sponsor to plan and carry out an independent research project resulting in a written report and presentation to the department. Prereq: Senior standing in the department; a written proposal approved by a faculty sponsor and by the department chairperson (or designee).

MATH 799 - Senior Thesis**Credits:** 2.00 or 4.00

Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Prereq: senior standing; a written proposal endorsed by a faculty sponsor and approved by the department chairperson (or designee). May be repeated up to 4 credits. Writing intensive.

Mechanical Engineering

ME 441 - Introduction to Engineering Design and Solid Modeling

Credits: 4.00

Engineering design process and the language of graphical communication introduced via team design projects and laboratory exercises. Topics include sketching, 3-D visualization, computer aided design, solid modeling, projection theory, engineering drawings, report writing and oral communication. Writing intensive.

ME 442 - Manufacturing Engineering and Design

Credits: 4.00

Introduces basic manufacturing processes associated with mechanical, electrical, and electronic systems through classroom lectures, seminars, laboratory exercises, field trips, and student projects. Prereq: ME 441.

ME 503 - Thermodynamics

Credits: 3.00

Properties of a pure substance, work and heat, laws of thermodynamics, entropy, thermodynamic relations, cycles. Prereq: PHYS 407. Pre- or Coreq: MATH 528.

ME 523 - Introduction to Statics and Dynamics

Credits: 3.00

Overview of statics and dynamics applying concepts to particles then to rigid bodies. Topics include two- and three-dimensional force systems; laws of equilibrium; analyses of trusses and frames; friction; relative motion; impulse-momentum principles; work-energy relationships. Prereq: MATH 426; PHYS 407. Not for ME majors.

ME 525 - Mechanics I

Credits: 3.00

Introduces statics. Two- and three-dimensional force systems, the concept of equilibrium, analysis of trusses and frames, centroids, bending moment and shear force diagrams, and friction. Prereq: PHYS 407. Pre- or Coreq: MATH 426. Writing intensive.

Co-requisites:

ME 526 - Mechanics II

Credits: 3.00

Introduces strength of materials. Analysis of members under torsion, axial, shear and bending stresses, superposition of stresses, stability of columns. Prereq: ME 525. Writing intensive.

ME 542 - Mechanical Dissection and Design Analysis

Credits: 4.00

Engineering design and analysis of mechanical systems through in-depth dissection experiences. Relationships between functional specifications and design solutions, role of engineering analysis in design, and the importance of manufacturing constraints. Lab experiences include team dissections of mechanical artifacts, e.g., fishing reel, bike, electric drill. Introduces basic metal working operations. Prereq: ME 441. Coreq: ME 525 and permission. No credit if credit received for ME 442.

ME 561 - Introduction to Materials Science

Credits: 4.00

The concepts of materials science and the relation of structure of material properties. Atomic structure, bonding material transport, mechanical properties of materials, solidification, phase diagrams, solid state transformations, and corrosion and oxidation. Laboratory exercises are carried out to demonstrate the basic concepts of the course. Prereq: one semester of introductory chemistry with a lab or equivalent. Writing intensive.

ME 603 - Heat Transfer

Credits: 3.00

Analysis of phenomena; steady-state and transient conduction, radiation, and convection; engineering applications. Prereq: MATH 527, ME 608. Pre- or Coreq: CS 410.

ME 608 - Fluid Dynamics

Credits: 3.00

Dynamics and thermodynamics of compressible and incompressible fluid flow; behavior of fluids as expressed by hydrostatic, continuity, momentum, and energy equations. Prereq: ME 503.

Co-requisites: ME 627

ME 627 - Mechanics III

Credits: 3.00

Introduction to particle and rigid body dynamics. Rectilinear and curvilinear motion, translation and rotation, momentum and impulse principles, and work-energy relationships. Prereq: ME 525 or permission. Writing intensive.

ME 629 - Kinematics and Dynamics of Machines

Credits: 3.00

Kinematic and dynamic analysis of mechanisms and their synthesis. Applications to reciprocating engines; balancing and cam dynamics are developed. Prereq: ME 627.

ME 643 - Elements of Design

Credits: 3.00

Analysis, synthesis, and design of machine elements and systems. Development of engineering judgment; selection of materials stress and failure analysis; kinematic arrangement design for finite and infinite life. Open-ended design problems unify course topics. Prereq: ME 526. Writing intensive.

ME 646 - Experimental Measurement and Data Analysis

Credits: 4.00

Basic and advanced techniques of engineering and scientific parameter measurement including statistical data and error analysis, curve fitting, calibration and application of transducers, and technical writing. Laboratory experiments draw on concepts from mechanics, thermodynamics, and fluid mechanics. Prereq: ME 526; 608. Writing intensive.

ME 670 - Systems Modeling, Simulation, and Control

Credits: 4.00

Lumped parameter models for mechanical, electrical, thermal, fluid, and mixed systems. Matrix representation, eigenvalues, eigenvectors, time domain solutions, frequency response plots, and computer simulations are used to explore system response. Design of system for desired responses. Introduces feedback control, stability, and performance criteria. Prereq: ECE 537, ME 608, MATH 527. Writing intensive.

ME 695 - Special Topics

Credits: 2.00 to 4.00

Course topics not offered in other courses. May be repeated for credit. Lab. Prereq: permission.

ME 696 - Projects**Credits:** 1.00 to 4.00

Analytical, experimental, or design projects undertaken individually or in teams under faculty guidance. May be repeated for credit.

ME 699 - Engineering Internship**Credits:** 1.00

Internship experience provides on-the-job reinforcement of academic programs in mechanical engineering. Contact the Mechanical Engineering department office for guidelines. May be repeated to a maximum of 3 credits. Prereq: appropriate class standing in major, 2.5 grade point average, and permission. Cr/F.

ME 705 - Thermal System Analysis and Design**Credits:** 4.00

Engineering design of thermal systems that involve real problems and analysis of performance of the design. Design criteria include function, performance, optimization, economy, safety, and others as appropriate for the system. Required for ME seniors. Prereq: ME 603. Writing intensive.

ME 707 - Analytical Fluid Dynamics**Credits:** 4.00

Kinematics of flow; constitutive relationships; development of the Navier-Stokes equations; vorticity theorems; potential flow. Prereq: ME 608.

ME 709 - Computational Fluid Dynamics**Credits:** 3.00

Review of matrix methods; basics of finite differences, basics of spectral methods, stability, accuracy, Navier-Stokes solvers. Prereq: ME 603 or permission.

ME 712 - Waves in Fluids**Credits:** 3.00

Linear and nonlinear dynamics of hyperbolic and dispersive wave systems with application to acoustic waves, surface and internal gravity waves, Rossby waves, and capillary waves. Key physical concepts include wave-generation mechanisms, wavelength and amplitude dispersion, group velocity and energy propagation, steady streaming, and mode interactions. Prereq: ME 608 or equivalent.

ME 724 - Vibration Theory and Applications**Credits:** 4.00

Discrete vibrating systems. Linear system concepts; single-degree-of-freedom system with general excitation. Matrix theory and eigenvalue problems. Many degrees of freedom, normal mode theory for free and forced vibration. Numerical methods; introduction to continuous systems; applications to structural and mechanical systems. Prereq: ME 526; 627 or permission.

ME 727 - Advanced Mechanics of Solids**Credits:** 4.00

Stress, strain, stress-strain relations, anisotropic behavior, introduction to elasticity, plane stress/strain, bending and torsion of members with general cross-sections introduction to thin plates and shells, energy methods. Prereq: ME 526 or permission.

ME 730 - Mechanical Behavior of Materials**Credits:** 4.00

Elastic and inelastic behavior of materials in terms of micro- and macro-mechanics. Stress, strain, and constitutive relations related to recent developments in dislocation theory and other phenomena on the atomic scale and to the continuum mechanics on the macroscopic scale. Elasticity, plasticity, viscoelasticity,

creep, fracture, and damping. Anisotropic and heterogeneous materials. Prereq: ME 526; 561 or permission.

ME 731 - Fracture and Fatigue Engineering Material

Credits: 4.00

Reviews fundamentals of linear elastic fracture mechanics and strain energy release rate analyses. Discusses basic methods of design for prevention of failure by fast fracture and fatigue for metals, ceramics, and polymers with attention to the effect of material properties and subsequent property modification on each design approach. Prereq: ME 526; 561 or permission.

ME 735 - Mechanics of Composite Materials

Credits: 4.00

Classification of composites. Anisotropy of composite materials. Micromechanical predictions of elastic and hygrothermal properties. Strength and failure of composite materials. Analysis of laminates. Experimental methods for characterization of composites. Prereq: ME 526; ME 603; or permission.

ME 743 - Satellite Systems, Dynamics, and Control

Credits: 3.00

General satellite systems with emphasis on spacecraft dynamics and control. Topics include general satellite information such as types of satellites, missions, and orbits, as well as satellite subsystems. Basic spacecraft dynamics and orbital mechanics topics are covered. Advanced topics include attitude and orbit estimation, and automatic attitude control. Prereq: ME 670 or permission.

ME 744 - Corrosion

Credits: 4.00

The course is split into three parts. The first part reviews and develops basic concepts of electro-chemistry, kinetics, and measurement methods. The second part covers the details of specific corrosion mechanisms and phenomena including passivity, galvanic corrosion, concentration cell corrosion, pitting and crevice corrosion, and environmentally induced cracking. The third part focuses on the effects of metallurgical structure on corrosion, corrosion in selected environments, corrosion prevention methods, and materials selection and design. Prereq: CHEM 405 or 403; ME 561 or permission. Lab. (Also listed as OE 744.)

ME 747 - Experimental Measurement and Modeling of Complex Systems

Credits: 4.00

Experimental measurements for evaluation, design, and control of mechanical, electrical, and thermal/fluid phenomena. Emphasizes the dynamic response of both sensors and systems and the interactions between physical processes. Experimental examples are drawn from mechanics, material science, thermal-fluid science and controls. Prereq: ME 561; 646; 670. Writing intensive.

ME 755 - Senior Design Project I

Credits: 2.00

Part I of this two-part sequence emphasizes problem definition, analysis, development of alternative concepts, decision-making processes, synthesis of an optimum solution and the development of a conceptual design. Lectures on these and other topics are combined with seminars given by professionals from industry, government, and academia. Related topics include ISO9000 quality systems, engineering management, design review process, engineering economics, team building and communications. Students are organized into project teams to develop a conceptual design. Formal design reviews are conducted. A formal proposal documents the semester's work. Prereq: Senior standing in ME. Lab. Writing intensive.

ME 756 - Senior Design Project II

Credits: 2.00

Continuation of Senior Design Project I, in which the proposal submitted in the previous course is developed into a prototype system. Part II emphasizes the development, assembly, testing and evaluation of the system designed in Part I. Lectures and seminars focus on the prototype development process, design verification and industry practices. A formal report documents the semester's work. Prereq: ME 755. Writing intensive.

ME 757 - Coastal Engineering and Processes

Credits: 3.00

Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduces mathematical and physical modeling. Prereq: ME 608 or permission. (Also offered as CIE 757 and OE 757.)

ME 760 - Physical Metallurgy I

Credits: 4.00

Introduction to physical metallurgy; dislocations; thermodynamics of materials, diffusion, phase transformations, and strengthening mechanisms in solids. Prereq: ME 561 or permission. Lab.

ME 761 - Diffraction and Imaging Methods in Materials Science

Credits: 4.00

Introduces x-ray diffraction and electron microscopy. Basic crystallography, reciprocal lattice, x-ray and electron diffraction, x-ray methods, transmission and scanning electron microscopy. Prereq: CHEM 403; PHYS 408 or permission. Lab.

ME 763 - Thin Film Science and Technology

Credits: 4.00

The processing, structure, and properties of thin solid films. Vacuum technology, deposition methods, film formation mechanisms, characterization of thin films, and thin-film reactions. Mechanical, electrical and optical properties of thin films. Prereq: ME 561 or permission.

ME 770 - Design with Microprocessors

Credits: 4.00

Basic operation of microprocessors and micro-controllers is explained, and interfacing these devices to sensors, displays and mechanical systems is explored. Topics include: number systems, architecture, registers, memory mapping, interrupts and interfacing for system design. Methods of programming and interfacing with mechanical/electrical systems are covered in class, and then implemented in lab. Prereq: ECE 537 or permission. Lab.

ME 772 - Control Systems

Credits: 4.00

Development of advanced control system design concepts such as Nyquist analysis, lead-lag compensation, state feedback, parameter sensitivity, controllability, observability, introduction to non-linear and modern control. Includes interactive computer-aided design and real-time digital control. Prereq: ME 747 or permission. (Also offered as ECE 772.) Lab.

ME 773 - Electromechanical Analysis and Design

Credits: 4.00

Analysis and design of electromechanical systems using lumped parameter models and magnetic finite element analysis (FEA). Electrostatic and magnetic field equations are discussed and used to derive magnetic and electric lumped model elements. Brushless dc motor is analyzed using lumped models and FEA. Various drive types are discussed and the motor system analyzed to obtain torque-speed curves. Design principles are given and utilized in a design project. Prereq: ME 670 or permission.

ME 776 - Product Design**Credits:** 4.00

Provides a thorough overview of the steps in the engineering design process. Topics include product planning, need identification, specification formulation, benchmarking, concept generation and selection, design for manufacture, assembly, and environment. Students develop a product as part of a team. Prereq: ME 441 or equivalent CAD experience; ME 542 (Mechanical Dissection) or ME 442 (Manufacturing).

ME 783 - Geometric Modeling**Credits:** 4.00

Topics include curves, surfaces, solids, analytic and relational properties, intersections, transformations, and solid modeling. Emphasizes applications in computer graphics and CAD/CAM systems. Prereq: CS 410; MATH 528 or permission.

ME 785 - Solid Mechanics in Manufacturing**Credits:** 4.00

Characterization of material properties are studied with emphasis on plastic deformation. Also, numerical approaches to solve for the forces, stresses, and strains in manufacturing processes are covered. In particular, two prominent mass production manufacturing areas, metal forming and cutting, are examined. Prereq: ME 561; ME 627.

ME 786 - Introduction to Finite Element Analysis**Credits:** 4.00

Topics include basic matrix theory, potential energy approach, direct stiffness method, calculus of variations, development of finite element theory, and modeling techniques. Applications in solid mechanics, heat transfer, fluids, and electromagnetic devices, via both commercially available codes and student-written codes. Prereq: ME 526 or permission. Lab.

ME 795 - Special Topics**Credits:** 1.00 to 4.00

New or specialized courses and/or independent study. May be repeated for credit.

ME 797 - Honors Seminar**Credits:** 1.00

Course enrichment and/or additional independent study in subject matter pertaining to a 600- or 700-level ME course other than ME 695, 696, 697, or 795.

Medical Laboratory Science

MLS 401 - Introduction to Medical Laboratory Science

Credits: 1.00

Designed for students interested in the study of medical laboratory science. Program and career options, certification requirements, and medical ethics and professionalism. Cr/F.

MLS 444A - Seven Deadly Diseases

Credits: 4.00

This course will analyze seven major disease processes and associated biological concepts. The student will evaluate each major disease process covered as to historical perspective, lore/misconceptions, disease etiology, physical impact of symptoms, diagnostic criteria, prevention and treatment. Emphasis will be placed upon clinical significance of race, class, gender, and global cultural traditions in the study of the selected diseases. The laboratory section will include hands on performance of pertinent diagnostic testing for disease identification. Lab fee. Writing Intensive.

MLS 444B - The Unseen Menace: The Impact of Microbial Disease on Human History

Credits: 4.00

Course explores and analyzes the significant, and at times catastrophic, effects of viral, bacterial, fungal and parasitic infections on human societies, cultures, economies, and religions world-wide from some of the earliest recorded events (ca. 350 BCE) to the present. The latter portion of the course focuses on the impact of microbial diseases on the colonization, exploration, territorial expansion, and growth of the United States, including its impact on Native American populations, and the known and potential threats of current, emerging, and re-emerging microbial diseases to our American society. Writing intensive.

MLS 610 - Biomedical Lab Management

Credits: 4.00

An overview of biomedical laboratory management, including financial operations, personnel management, marketing, information management, and instructional skills. Writing intensive.

MLS 640 - Phlebotomy Theory

Credits: 2.00

The procedures involved in blood collection with emphasis on safety and professionalism. Students observe all techniques and have an opportunity to perform them. Recommended for students considering a health care profession. Special fee. Permission required.

MLS 641 - Phlebotomy Clinical Internship

Credits: 1.00 to 2.00

Students obtain experience and proficiency in blood collection techniques at a health care facility (80 to 120 hours). Prereq: MLS 640. Permission required. Cr/F.

MLS 642 - Basic Immunology and Serology

Credits: 2.00

Introduces the immunologic basis of selected disease states. Topics include both the innate and acquired immune systems and the specific changes that occur when the immune systems are challenged.

MLS 643 - Clinical Serology Laboratory

Credits: 1.00

Practical experience testing for immune system disorders. Permission required. Special fee.

Co-requisites: MLS 642

MLS 644 - Hematology - Blood Cells and Coagulation

Credits: 3.00

Human blood cell physiology in both health and disease. Includes all benign and malignant conditions of red blood cells, white blood cells, platelets, and hemostasis factors.

MLS 645 - Clinical Hematology Laboratory

Credits: 3.00

The analysis of whole blood for cellular components and plasma for hemostatic evaluation. Special emphasis on differentiating benign from malignant processes, and cellular identification by morphologic, cytochemical, and CD marker abnormalities. Permission required. Special fee.

Co-requisites: MLS 644

MLS 656 - Immunohematology and Transfusion Science

Credits: 2.00

The immunology of blood, including blood group systems and the critical role they play in safe transfusion medicine. Additional topics include blood collection, component use, transfusion reactions, and transfusion-transmitted infections.

MLS 657 - Blood Banking Laboratory

Credits: 1.00

Students obtain experience in blood banking practices including blood typing, antibody screening, cross matching, and confirmatory testing. Permission required. Special fee.

Co-requisites: MLS 656

MLS 658 - Medical Biochemistry

Credits: 3.00

The assessment of disease states through the analytical assessment of amino acids, proteins, enzymes, tumor markers, non-protein nitrogen metabolites, carbohydrates, lipids, electrolytes, blood gases, hormones, vitamins, and trace elements. Prereq: BCHM 658/659, BIOL 528 or other statistics course.

MLS 659 - Clinical Chemistry Laboratory

Credits: 2.00

Utilizing analytical methodologies with an emphasis on quality control, students will analyze blood analytes such as glucose, BUN, creatine, electrolytes, enzymes, cholesterol, bilirubin and serum protein and evaluate their clinical significance. Special fee. Permission required.

Co-requisites: MLS 658

MLS 660 - Body Fluids

Credits: 2.00

The study of diseases and disorders through the analysis of extra-vascular body fluids. Emphasizes renal anatomy and physiology, and diseases and metabolic disorders affecting renal function.

MLS 661 - Body Fluids Laboratory

Credits: 1.00

Practical experience in the performance and clinical correlation of urinalysis and selected body fluid procedures. Permission required. Special fee.

Co-requisites: MLS 660

MLS 696 - Independent Study

Credits: 1.00 to 6.00

In-depth studies under faculty supervision. Prereq: approval of the faculty the area concerned. May be repeated up to a maximum of 16 credits. Cr/F.

MLS 696W - Independent Study

Credits: 1.00 to 6.00

See description for MLS 696. Cr/F. Writing intensive.

MLS 720 - Mycology, Parasitology, and Virology

Credits: 3.00

Covers human fungal, parasitic, and viral infections. The mechanism of infection, life cycles, and infectious stages of the organism as well as disease progression within the host. Prereq: MICR 602.

MLS 721 - Mycology, Parasitology, and Virology Laboratory

Credits: 2.00

Practical experience in diagnosing and identifying specific organisms as well as correlating test results with the studied fungal, parasitic, or viral disease. Permission required. Special fee.

Co-requisites: MLS 720

MLS 750 - Seminar

Credits: 2.00 to 4.00

Clinical case study presentations emphasizing the role of the laboratory in diagnosing and treating disease and in maintaining health. Prereq; senior MLS majors only or permission. Writing intensive.

MLS 751 - Advanced Clinical Microbiology Internship

Credits: 5.00

Advanced clinical bacteriological procedures, fluorescent techniques, and special procedures. Mycology and parasitology identification and testing. Prereq: senior MLS majors only.

MLS 751W - Advanced Clinical Microbiology Internship

Credits: 5.00

See description for MLS 751. Writing intensive.

MLS 752 - Advanced Hematology Internship

Credits: 5.00

Special hematology procedures including diagnostic staining, advanced hemostasis studies, and evaluation of blood cells in disease states. Prereq: senior MLS majors only.

MLS 752W - Advanced Hematology Internship

Credits: 5.00

See description for MLS 752. Writing intensive.

MLS 753 - Advanced Immunohematology Internship

Credits: 5.00

Advanced blood-banking procedures, including antibody identification, and component therapy. Principles and procedures for detecting disorders of cellular and humoral immunity. Prereq: senior MLS majors only.

MLS 753W - Advanced Immunohematology Internship

Credits: 5.00

See description for MLS 753. Writing intensive.

MLS 754 - Advanced Clinical Chemistry Internship

Credits: 5.00

Theory, operation, evaluation, and maintenance of automated chemistry systems. Advanced laboratory

analysis of body fluid chemistries including enzymology, isotopes, hormones, blood gases, and toxicology. Data analysis, computerization. Prereq: senior MLS majors only.

MLS 754W - Advanced Clinical Chemistry Internship

Credits: 5.00

See description for MLS 754. Writing intensive.

MLS 755 - Molecular Diagnostics

Credits: 4.00

Introduce students to the concepts and principles of infectious disease detection and human genetic screening used in clinical labs. This includes covering the major methods required to go from nucleic acid extraction to analysis (DNA extraction, PCR, hybridization, and sequencing). Course reviews what clinically relevant pathogens (bacteria, virus, and fungi) are ideal targets for molecular identification in the clinical lab and what methods are currently being used in this application. It will also highlight molecular methods applied in human health and disease, including identity testing, molecular oncology, chromosome analysis, and screening for inherited diseases.

MLS 761 - Clinical Microbiology Internship

Credits: 20.00

Advanced instruction in clinical bacteriology, mycology, parasitology, and virology at local hospital or reference laboratory. Isolation, identification, and antibiotic sensitivities for common pathogens are emphasized. Prereq: MICR 602; senior MLS majors only.

MLS 761W - Clinical Microbiology Internship

Credits: 20.00

See description for MLS 761. Writing intensive.

MLS 762 - Clinical Hematology Internship

Credits: 20.00

Advanced instruction in hematology and hemostasis at a local hospital or reference laboratory. Specialized tests such as automated cell counts, cytochemical analyses, and specialized hemostasis are covered. Prereq; MLS 652; senior MLS majors only.

MLS 763 - Clinical Immunohematology Internship

Credits: 20.00

Advanced instruction in clinical immunohematology at a local hospital or reference laboratory. Pre-transfusion testing, donor screening, phlebotomy and component therapy emphasized. Prereq: MLS 653; senior MLS majors only.

MLS 764 - Clinical Chemistry Internship

Credits: 20.00

Advanced instruction in clinical chemistry at a local hospital or reference laboratory. Analysis of carbohydrates, proteins, enzymes, lipids, hormones, electrolytes, blood gases, and drugs. Prereq: MLS 654; senior MLS majors only.

MLS 796 - Biomedical Research Internship

Credits: 4.00 to 16.00

Advanced instruction/participation in some aspect of biomedical research, either on or off campus. Student designs program of study with research supervisor and MLS faculty advisor. May be repeated up to a maximum of 40 credits.

MLS 799 - Senior Honors Thesis

Credits: 4.00

Microbiology

MICR 407 - Germs 101

Credits: 4.00

Expands on the increasing public awareness of the societal and technological impact of the invisible microbial world on our lives and on the planet. Students participate in weekly extra-class activities, acting as life scientists by using the scientific method of inquiry. One experience focuses on bacteria that use sunlight to make a living, another on using bacteria in genetic engineering. Students come to view germs in diverse lights: microbes as organisms, microbes as enemies, microbes as friends, and microbes in the press. Especially useful for people with microphobia. Not for Microbiology or Biology major credit. Special fee.

MICR 444 - From Frankenstein to Dolly, and Beyond

Credits: 4.00

This course is an interdisciplinary introductory course designed specifically for first year students. It seeks to stimulate and support student inquiry and exploration of social and ethical issues associated with scientific research and advances, the value-laden questions that they often precipitate, and their impact on individuals, population groups, and society at large. (Also listed as HMP 444.)

MICR 501 - Microbes in Human Disease

Credits: 4.00

Microorganisms have a profound effect on our everyday lives. This effect can often be dramatic enough to capture many of today's news headlines. Did you ever wonder why people died from eating hamburgers contaminated with *E. coli*? How do "flesh-eating bacteria" function? Will there be an AIDS vaccine? Explores the answers to these and many other fascinating questions by examining the role of microorganisms in human disease. The fundamental structure, metabolism, genetics, and ecology of clinically relevant bacteria, viruses, fungi, and parasites and presented in relationship to the human host and its immune system. The foundation, incidence, and control of microbial diseases are presented through case studies. Emphasizes active learning in which students participate in classroom discussions, experiments, and demonstrations. Laboratory exercises designed to introduce techniques for the identification of important pathogenic microorganisms and disease diagnosis. Special fee. Lab.

MICR 501H - Honors/Microbes in Human Disease

Credits: 4.00

See description for MICR 501.

MICR 503 - General Microbiology

Credits: 5.00

Principles of microbiology; morphology, physiology, genetics, culture, and classification of bacteria and other microorganisms; and their relationships to agriculture, environment, industry, sanitation, and infectious diseases. Prereq: BIOL 411-412 or equivalent; CHEM 403-404 or equivalent. Special fee. Lab.

MICR 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. Prereq: permission. May be repeated to a maximum of 8 credit hours. Only 4 credit hours can be used toward the major. Cr/F.

MICR 600W - Field Experience

Credits: 1.00 to 4.00

See description for MICR 600. Cr/F. Writing intensive.

MICR 602 - Pathogenic Microbiology

Credits: 5.00

Morphologic, cultural, biochemical, serologic, epidemiologic, and pathogenic characteristics of microorganisms causing human and animal diseases. Discussion of clinical presentation in host and laboratory diagnosis and treatment measures. Prereq: MICR 503. Lab. Special fee. By permission only.

MICR 603 - Bacteriology of Food

Credits: 5.00

Lectures and laboratories will address modern technical concepts of the microbiology, physiology, and biochemistry related to food sanitation. Theoretical and practical approach serves as an integrative experience. Food sanitation is a serious public health issue in the meat, dairy, fish, and water industries. Benefits students seeking employment in public health or sanitary microbiology fields. Topics include food as a substrate for microorganisms, causes of food spoilage, food borne disease outbreaks, public health complications, isolation and identification of food spoiling microorganisms, and essentials for food safety and sanitation. Prereq: MICR 503 or equivalent. (Not offered every year.) Special fee.

MICR 651 - Biotechnology Experience/Biomanufacturing

Credits: 4.00

Course begins by introducing students to the proteins and companies of biotechnology and to current good manufacturing practices. For remainder of course, students use cell culture of bacteria, mammalian and yeast cells to produce human proteins using the tools and manufacturing standards, operating procedures of biotechnology, including upstream and downstream processing of proteins, and quality control of protein production. (Also offered as ANSC 651.)

MICR 655 - Biotechnology Experience/Research

Credits: 4.00

One of two courses that provide students with state-of-the art tools of biotechnology and an opportunity to master skills and acquire the knowledge needed to work effectively in a biotechnology lab within the industry. Research protocols used in this course illustrate aspects of the "central dogma" of molecular biology. Prereq: BIOL 411, 412, and MICR 503. (Also listed as ANSC 655.)

MICR 702 - Infectious Disease and Health

Credits: 5.00

Principles underlying the nature of infectious agents; the diseases they cause; pathogenic strategies; response of the host; intracellular parasitism; epidemiology; control measures including vaccines and chemotherapy; action of antimicrobial chemotherapeutic agents; pharmacokinetics and drug metabolism. Ethical issues in infectious disease covered. Well-established pathogens and newer, emerging human and animal disease agents covered. Prereq: MICR 602; permission. (Not offered every year.)

MICR 704 - Genetics of Prokaryotic Microbes

Credits: 5.00

Study of the maintenance, exchange, and expression of genetic material in bacteria and their viruses. Combines a historical overview on the important role microbial genetics played in the development of modern molecular biology with a contemporary perspective on the methods used to understand the function of genes. Particular emphasis is placed on current experimental applications to basic science, biomedical research, and biotechnology. (Also listed as GEN 704.) Prereq: MICR 503, BCHM 658. Special fee.

MICR 705 - Immunology

Credits: 3.00

Introduces the major cellular and molecular components of the immune system; examines their development and production, their interactions with each other and with other systems in the body, and their regulation; explores their role in beneficial and harmful immune responses in humans and animals. This course must be taken in conjunction with MICR 715 to receive major credit in Microbiology. Prereq: MICR 503.

MICR 706 - Virology

Credits: 3.00

Principles of animal and selected plant and bacterial virology in relation to infection and disease. Emphasizes the molecular biology of viruses, viral replication, isolation, propagation, assay, pathogenesis, diagnosis, detection, epidemiology, and control. Prereq: MICR 503.

Co-requisites:

MICR 707 - Marine Microbiology

Credits: 5.00

Qualitative and quantitative evaluation of the physiological activities of microorganisms that influence the state of carbon, nitrogen, sulfur, iron, manganese, phosphorous, hydrogen, oxygen, and other elements in the sea and its sediments. Provides an understanding of the interrelationships between marine microorganisms and their surroundings by integrating microbiological phenomena with known aspects of physical, chemical, and biological oceanography. Introduces students to the primary scientific literature in marine microbiology, teaches each student how to think provocatively and concertedly, and convey those thoughts clearly and concisely in both oral and written form. Prereq: MICR 503. Writing intensive.

MICR 708 - Virology Lab

Credits: 2.00

Principles and practices of animal, selected plants, and bacterial virological methods for the propagation, detection and enumeration of viruses. Prereq: MICR 503. Coreq: MICR 706. Special fee.

Co-requisites: MICR 706

MICR 711 - Genomics and Bioinformatics

Credits: 4.00

The methods, applications, and implications of genomics--the analysis of whole genomes. Microbial, plant and animal genomics are addressed, as well as medical, ethical and legal implications. The lab provides exposure and experience of a range of bioinformatics approaches--the computer applications used in genome analysis. Prereq: BIOL 604. (Also offered as BCHM 711 and GEN 711.) Lab.

MICR 713 - Microbial Ecology and Evolution

Credits: 4.00

Functional roles of microorganisms, their population dynamics and interactions, and their mechanisms of evolutionary change in natural communities, laboratory experiments, and simple mathematical models. Special emphasis on the tempo and mode of prokaryotic adaptation, the evolution of virulence, and the origin of new pathogens. Prereq: MICR 503. (Also listed as GEN 713.) Special fee.

MICR 714 - Public Health and Waterborne Diseases

Credits: 4.00

Course has three sections: 1) government, 2) disease and epidemiology, and 3) sources of anthropogenic (of human origin) microbial pollution, control and disinfection. The overall theme of the class is to understand how and why waterborne (virus, protozoal, and bacterial) and some food-borne diseases are still prevalent within our society. The class usually goes on at least two field trips, to a wastewater plant and a drinking water plant; at times students may be asked to go to town meetings or public hearings

concerning water and pollution. In lab, students do experiments and then analyze their data and share it with the rest of the class by posting it on the class Web site. Prereq: MICR 503. Special fee.

MICR 715 - Immunology Laboratory

Credits: 2.00

Introduction to major components of the immune system; principles and applications for cellular and antibody based immunological techniques. Prereq: MICR 503. Special fee.

Co-requisites:

MICR 717 - Microbial Physiology

Credits: 5.00

Fundamental physiological and metabolic processes of archaea, bacteria and fungi with a strong emphasis on prokaryotes. Literature-based course. Topics include regulation of and coordination of microbial metabolism, bacterial cell cycle, global control of gene expression, diversity of energy metabolism, and microbial cell differentiation. Prereq: MICR 503, BCHM 658 or 751; or permission. Special fee. Lab. Writing intensive.

MICR 718 - Ethics and Issues in Microbiology

Credits: 4.00

Advances being made in the biological sciences impact the need for scientific integrity. From guiding students in the laboratory to scientific record keeping, from authorship and peer review to potential conflicts of interest, from use of animals and humans in research to genetic technology, scientists need to understand the ethical issues that underlie their work. These and related issues are presented and discussed in a format that encourages both an appreciation of established guidelines and an opportunity to critically examine them. Writing intensive.

MICR 751 - Cell Culture

Credits: 5.00

Theory and principles fundamental to the culture of cells in vitro. Introduces techniques of preparation and maintenance of animal, plant, insect, and fish cell cultures. Application of cell culture to contemporary research in biological sciences. Prereq: MICR 503; permission. (Also offered as ANSC 751 and PBIO 751. No credit if credit received for MICR 751 or ANSCI 746.) Special fee. Lab.

MICR 790 - Laboratory Teaching Experience

Credits: 1.00 to 4.00

Students assist Graduate Teaching Assistants in preparing, presenting, and executing Microbiology laboratory. May be repeated up to a maximum of 4 credits.

MICR 795 - Problems

Credits: 1.00 to 8.00

Special projects in microbiology. Research topics in immunology; virology; microbial genetics; pathogenics; microbial ecology; microbial physiology; marine microbiology; detection of pathogens in shellfish. May be repeated up to 8 times for up to a maximum of 8 credits.

MICR 795W - Problems

Credits: 1.00 to 8.00

See description for MICR 795. Writing intensive.

Military Science

MILT 401 - Leadership Laboratory I

Credits:

Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include a team-building leader reaction course, orientation to military weapons, basic tactical movement, and land navigation. Cr/F.

MILT 402 - Leadership Laboratory II

Credits:

Open only to students taking another Military Science class, with different roles offered for students at different levels of the program. Involves leadership responsibilities for the planning, coordination, execution, and evaluation of various training programs. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of supervisory positions. Specific events include basic marksmanship, advanced tactical movement, orienteering and land navigation. Cr/F.

MILT 413 - Introduction to ROTC

Credits: 2.00

Make your first new peer group at college one committed to performing well and enjoying the experience. Increase self-confidence through team study and activities in physical fitness, rappelling, first aid, basic marksmanship, and basic drill. Learn fundamental concepts of leadership in both classroom and outdoor laboratory environments. One hour and a required leadership lab (MILT 401L) plus optional (mandatory for scholarship cadets) participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required for all cadets. Open to all college students, no military commitment required.

MILT 414 - Introduction to ROTC II

Credits: 2.00

Learn and apply principles of effective leadership. Reinforce self-confidence through participation in physically and mentally challenging exercises with other ROTC cadets. Continued activities in basic drill, physical fitness, rappelling, first aid, and basic marksmanship. Develop communication skills to improve individual performance and group interaction. One hour and a required leadership lab (MILT 402L) plus optional (mandatory for scholarship cadets) participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required for all cadets. Open to all college students; no military commitment required.

MILT 501 - Self/Team Development I

Credits: 2.00

Learn and apply ethics-based leadership skills that develop individual abilities and contribute to the building of effective teams of people. Develop skills in oral presentations, planning of events, advanced first aid, physical fitness, and land navigation. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 401L), plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required.

Co-requisites: MILT 401

MILT 502 - Individual/Team Military Tactics

Credits: 2.00

Introduces individual and team aspects of military tactics in small unit operations. Includes use of radio communications, making safety assessments, movement techniques, planning for team safety/security, and methods of pre-execution checks. Practical exercises with other ROTC students. Learn techniques for training others as an aspect of continued leadership development. Two hours and a required leadership lab (MILT 402L), plus optional participation (mandatory for scholarship cadets) in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is required. Additional weekend exercises may be offered for optional participation. Open to all college students, no military commitment required.

Co-requisites: MILT 402

MILT 550 - Camp Challenge

Credits: 4.00

Five-week leadership training course at Fort Knox, Kentucky during the summer that exposes students to intensive leadership evaluation and development. Students learn fundamental military skills such as land navigation using a map and compass, principles of leadership, first aid, drill and ceremony, team building exercises, etc. in preparation for future training as ROTC cadets. Students gain professional knowledge in management and organization and experience group interaction and interpersonal communications through total immersion in a military type environment. Open only to students who have not completed all of the following: MILT 401, 402, 501, and 502. Airfare, lodging, and expenses are paid by the Army. Student incurs no military obligation; program offers opportunities to earn a two-year scholarship and qualifies students to take MILT 601.

MILT 601 - Leading Small Organizations I

Credits: 4.00

Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Plan and conduct training for other ROTC students in small unit offensive and defensive operations. Three hours and required leadership lab (MILT 401L) plus required participation in three one-hour sessions of physical fitness per week. Participation in one weekend exercise is also required. Other weekend exercises are offered for optional participation. Prereq: Cadet completes MILT 550 or completes MILT 413, 414, 501, and 502.

MILT 602 - Leading Small Organizations II

Credits: 4.00

Continues the methodology from MILT 601. Analyze tasks; prepare written and oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation.

MILT 611 - Seminar on Leadership and Management I

Credits: 4.00

Plan, conduct and evaluate activities of the ROTC cadet organization. Articulate goals and put plans into action to attain them. Assess organizational cohesion and develop strategies to improve it. Develop confidence in skills to lead people and manage resources. Learn/apply various Army policies and programs in this effort. Three hours and a required leadership lab (MILT 401L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 601 and MILT 602.

MILT 612 - Transition to Lieutenant**Credits:** 4.00

Continues the methodology from MILT 611. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques. Examine aspects of tradition and law as related to leading as an officer in the Army. Prepare for a future as a successful Army lieutenant. Three hours and a required leadership lab (MILT 402L) plus required participation in three one-hour sessions for physical fitness per week. Participation in one weekend exercise is also required, and one or two more weekend exercises may be offered for optional participation. Prereq: MILT 611.

MILT 695 - Officer Internship**Credits:** 1.00 to 4.00

Experiential learning through fieldwork in a military-type unit. Written analysis required. Prereq: MILT 611 (may be taken concurrently). By permission only. Coreq: MILT 401. May be taken up to a total of 8 credits.

Music

MUSI 401 - Introduction to Music

Credits: 4.00

Fundamental approach to perceptive listening based on a detailed study of several masterpieces representing different periods and forms. Historical perspective, but main emphasis is on confronting significant works of musical art on their own terms. Some participation in musical life of the University required. Does not fulfill a major requirement.

MUSI 401H - Honors/Introduction to Music

Credits: 4.00

See description for MUSI 401.

MUSI 402 - Survey of Music History

Credits: 4.00

The study of the development of musical styles and idioms in the context of selected historical and cultural aspects of Western civilization.

MUSI 402H - Honors/Survey of Music History

Credits: 4.00

See description for MUSI 402.

MUSI 411 - Fundamentals of Music Theory

Credits: 4.00

Elements of music theory for the non-music major; principles of musical structure, analysis, elementary written counterpoint and harmony, and ear training. May not be counted for credit toward a music major. Prereq: ability to read music and permission of the instructor.

MUSI 412 - Fundamentals of Music Theory

Credits: 4.00

See description for MUSI 411. Prereq: MUSI 411 or permission of instructor.

MUSI 441 - Concert Choir

Credits: 1.00

A mixed chorus that studies and performs classical and modern literature. Recommended for voice majors. Open to all students. May be repeated for a maximum of 8 credits.

MUSI 442 - Chamber Singers

Credits: 1.00

A specialized mixed chamber choir that concentrates on the a cappella repertoire from the Renaissance to the present. Prereq: Audition.

Co-requisites: MUSI 441

MUSI 444 - Music & Soc Change in America

Credits: 4.00

Focuses on music in the United States during the early to mid-twentieth century as it alternately reflected and led movements for social change. Course work consists of listening to selected repertoires, reading scholarly and popular essays about those repertoires, and extensive in-class (and on-line) discussion about issues raised by the listening and reading. The goal of the course is twofold: 1) to heighten critical listening skills so as to become more aware of ways in which music can express social attitudes; and 2) to

introduce the social, cultural, and political issues surrounding the music being studied. Writing intensive.

MUSI 448 - Opera Workshop

Credits: 1.00

Operatic singing, acting, and production techniques; performance of both complete operas and operatic excerpts. Prereq: audition.

MUSI 450 - Symphony

Credits: 1.00

Presents several concerts during the year of repertoire ranging from the great, standard symphonic literature to large modern works. Prereq: audition.

MUSI 451 - Concert Band

Credits: 1.00

The Concert Band performs serious, concert music, ranging from transcriptions of works for other mediums, to the 20th century "classics" of the wind band repertoire and music written for wind band. Anyone with previous band experience is welcome. Auditions are for chair placement only. May be repeated up to a maximum of 12 credits.

MUSI 452 - Wind Symphony

Credits: 1.00

Select wind ensemble which performs difficult classical and contemporary literature. Prereq: audition.

MUSI 453 - Symphonic Band

Credits: 1.00

Original band music, transcription, marches, etc. For students whose program does not permit music as a major interest, but who are interested in maintaining their playing proficiency and continuing their study of music. May be repeated for a maximum of 8 credits. Prereq: audition

MUSI 454 - UNH Marching Band

Credits: 1.00

Open to all students; performs during football games. Rehearsals conclude at the end of the football season. May be repeated up to a maximum of 8 credits. 0 or 1 credit.

MUSI 455 - Piano Ensemble

Credits: 1.00

Drawing from available student instrumentalists and singers, pianists learn the art of performing in trios, duo sonatas, and two-piano works, and gain experience in Lieder accompaniment.

MUSI 456 - String Ensemble

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 457 - Woodwind Ensemble

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. Prereq: permission.

MUSI 458 - Brass Ensemble

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble.

Prereq: permission.

MUSI 459 - Percussion Ensemble

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble.

Prereq: permission.

MUSI 460 - Jazz Band

Credits: 1.00

Two jazz bands perform a wide spectrum of big band literature. May be repeated up to a maximum of 8 credits. Prereq: audition.

MUSI 462 - Pep Band

Credits: 1.00

Rehearsal and performance of a broad range of band music at hockey and basketball games. May be repeated up to a maximum of 8 credits. 0 or 1 credit.

MUSI 463 - Jazz Combo

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller jazz ensemble.

May be repeated up to a maximum of 9 credits. Prereq: permission.

MUSI 464 - Guitar Ensemble

Credits: 1.00

Groups of instrumentalists gain experience in the performance of literature for the smaller ensemble. May be repeated up to a maximum of 9 credits. Prereq: permission.

MUSI 471 - Theory I

Credits: 3.00

Introduces the tonal system; species counterpoint; principles of voice leading and harmonic progression through the analysis, realization, and composition of one-, two-, and four-voiced textures. Concept of triad inversion and consonant diatonic harmonies of the major and minor modes. Students should register for MUSI 473-474 concurrently. Prereq: permission.

MUSI 472 - Theory I

Credits: 3.00

See description for MUSI 471. Prereq: MUSI 471.

MUSI 473 - Ear Training I

Credits: 1.00

Laboratory exercises to develop aural skills; sight-singing and dictation. Students should register for MUSI 471-472 concurrently. Prereq: permission.

MUSI 474 - Ear Training I

Credits: 1.00

See description for MUSI 473. Prereq: MUSI 473.

MUSI 475 - Functional Piano I

Credits: 1.00

Basic instruction for music majors with no previous keyboard training. Piano technique, keyboard harmony geared to the practical harmonization of simple melodies, sight reading, transposition, and modulation. May involve both class instruction and periodic short individual lessons. Prereq: permission.

Co-requisites: MUSI 471, MUSI 473

MUSI 476 - Functional Piano I

Credits: 1.00

See description for MUSI 475. Prereq: MUSI 475. **Co-requisites:** MUSI 472, MUSI 474

MUSI 501 - History and Literature of Music

Credits: 3.00

Styles, forms, and techniques of composition in Western music. Prereq: completion of MUSI 472 or MUSI 412; permission.

MUSI 502 - History and Literature of Music

Credits: 3.00

See description for MUSI 501.

MUSI 511 - Survey of Music in America

Credits: 4.00

From colonial times to the present, including the various European influences, the quest for an American style, and the emergence of such indigenous phenomena as jazz.

MUSI 520 - Diction for Singers I

Credits: 2.00

Application of International Phonetic Alphabet (IPA) to English, French, German, and Italian. Emphasizes both written and spoken performance.

MUSI 521 - Diction for Singers II

Credits: 2.00

See description for MUSI 520. Prereq: MUSI 520.

MUSI 536 - Early Wind Instruments

Credits: 1.00 to 4.00

Private instruction in Renaissance and Baroque wind instruments. May be repeated. Special fee.

MUSI 541 - Piano

Credits: 1.00 to 4.00

Private instruction in piano. May be repeated. Special fee for non-majors.

MUSI 545 - Voice

Credits: 1.00 to 4.00

Private instruction in voice. May be repeated. Special fee for non-majors.

MUSI 546 - Violin

Credits: 1.00 to 4.00

Private instruction in violin. May be repeated. Special fee for non-majors.

MUSI 547 - Viola

Credits: 1.00 to 4.00

Private instruction in viola. May be repeated. Special fee for non-majors.

MUSI 548 - Violoncello

Credits: 1.00 to 4.00

Private instruction in violoncello. May be repeated. Special fee for non-majors.

MUSI 549 - String Bass**Credits:** 1.00 to 4.00

Private instruction in string bass. May be repeated. Special fee for non-majors.

MUSI 551 - Flute**Credits:** 1.00 to 4.00

Private instruction in flute. May be repeated. Special fee for non-majors.

MUSI 552 - Clarinet**Credits:** 1.00 to 4.00

Private instruction in clarinet. May be repeated. Special fee for non-majors.

MUSI 553 - Saxophone**Credits:** 1.00 to 4.00

Private instruction in saxophone. May be repeated. Special fee for non-majors.

MUSI 554 - Oboe**Credits:** 1.00 to 4.00

Private instruction in oboe. May be repeated. Special fee for non-majors.

MUSI 555 - Bassoon**Credits:** 1.00 to 4.00

Private instruction in bassoon. May be repeated. Special fee for non-majors.

MUSI 556 - French Horn**Credits:** 1.00 to 4.00

Private instruction in French horn. May be repeated. Special fee for non-majors.

MUSI 557 - Trumpet**Credits:** 1.00 to 4.00

Private instruction in trumpet. May be repeated. Special fee for non-majors.

MUSI 558 - Trombone**Credits:** 1.00 to 4.00

Private instruction in trombone. May be repeated. Special fee for non-majors.

MUSI 559 - Euphonium**Credits:** 1.00 to 4.00

Private instruction in euphonium. May be repeated. Special fee for non-majors.

MUSI 560 - Tuba**Credits:** 1.00 to 4.00

Private instruction in tuba. May be repeated. Special fee for non-majors.

MUSI 561 - Percussion**Credits:** 1.00 to 4.00

Private instruction in percussion. May be repeated. Special fee for non-majors.

MUSI 562 - Jazz Piano**Credits:** 1.00 to 4.00

Private instruction in jazz piano. May be repeated. Special fee for non-majors. Permission required.

MUSI 563 - Jazz Guitar

Credits: 1.00 to 4.00

Private instruction in jazz guitar. May be repeated. Special fee for non-majors.

MUSI 564 - Drum Set

Credits: 1.00 to 4.00

Private instruction in drum set. May be repeated. Special fee for non-majors.

MUSI 571 - Theory II

Credits: 3.00

Continuation of MUSI 471-472. Compositional and analytical work stresses the treatment of dissonance within the tonal system; accessory tones, seventh chords, tonicization, modulation, basic principles of chromatic harmony, and harmonization of chorale melodies are covered. Students should register for MUSI 573-574 concurrently. Prereq: MUSI 472; 474.

MUSI 572 - Theory II

Credits: 3.00

See description for MUSI 571. Prereq: MUSI 571.

MUSI 573 - Ear Training II

Credits: 1.00

Laboratory exercises to develop aural skills further. Students should register for MUSI 571-572 concurrently. Prereq: MUSI 472; 474; permission.

MUSI 574 - Ear Training II

Credits: 1.00

See description for MUSI 573.

MUSI 575 - Functional Piano II

Credits: 1.00

See description for MUSI 475. Prereq: MUSI 476. **Co-requisites:** MUSI 571, MUSI 573

MUSI 576 - Functional Piano II

Credits: 1.00

See description for MUSI 575. Prereq: MUSI 575. **Co-requisites:** MUSI 572, MUSI 574

MUSI 595 - Special Topics in Music Literature

Credits: 1.00 to 4.00

Open to music majors and non-majors; topics in areas not easily covered in historical courses. Prereq: permission. May be repeated for credit.

MUSI 703 - Music of the Renaissance

Credits: 3.00

Works of the 15th- and 16th-century composers from Dunstable to Palestrina. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 705 - Music of the Baroque

Credits: 3.00

Music of Europe from de Rore to Bach. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 707 - Music of the Classical Period

Credits: 3.00

Growth of musical styles and forms from early classicism through the high classicism of Haydn, Mozart, and the young Beethoven. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 709 - Music of the Romantic Period**Credits:** 3.00

A survey of romanticism in music from Beethoven's late period to the end of the 19th century. The works of Schubert, Berlioz, Schumann, Mendelssohn, Chopin, Wagner, Verdi, Brahms, Austrian symphonists, French pre-impressionists, and national styles in European music. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 711 - Music of the 20th and 21st Centuries**Credits:** 3.00

Styles and techniques of composers from Debussy to the present. Special emphasis on tonal music before World War I, neoclassical trends, the emergence of atonality and serial techniques, electronic music. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI #713 - Art Song**Credits:** 3.00

History and literature of the solo song with piano accompaniment. Survey of national styles of the 19th and 20th centuries and deeper study of the central core of the art song--the German Lied. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 715 - Survey of Opera**Credits:** 3.00

History of the genre from Monteverdi to the present. Prereq: MUSI 501 and 502 or permission. Writing intensive.

MUSI 731 - Conducting**Credits:** 2.00

Physical aspects, equipment of conductor, fundamental gestures and beats, baton techniques. Reading and analysis of full and condensed scores, study of transposition, psychology of rehearsal. Prereq: MUSI 571.

MUSI 732 - Conducting**Credits:** 2.00

See description for MUSI 731. Prereq: MUSI 731.

MUSI 736 - Early Wind Instruments**Credits:** 1.00 to 4.00

Private instruction in Renaissance and Baroque wind instruments. May be repeated. Special fee.

MUSI 741 - Piano**Credits:** 1.00 to 4.00

Private instruction in piano. May be repeated. Special fee for non-majors.

MUSI 745 - Voice**Credits:** 1.00 to 4.00

Private instruction in voice. May be repeated. Special fee for non-majors.

MUSI 746 - Violin**Credits:** 1.00 to 4.00

Private instruction in violin. May be repeated. Special fee for non-majors.

MUSI 747 - Viola

Credits: 1.00 to 4.00

Private instruction in viola. May be repeated. Special fee for non-majors.

MUSI 748 - Violoncello

Credits: 1.00 to 4.00

Private instruction in violoncello. May be repeated. Special fee for non-majors.

MUSI 749 - String Bass

Credits: 1.00 to 4.00

Private instruction in string bass. May be repeated. Special fee for non-majors.

MUSI 751 - Flute

Credits: 1.00 to 4.00

Private instruction in flute. May be repeated. Special fee for non-majors.

MUSI 752 - Clarinet

Credits: 1.00 to 4.00

Private instruction in clarinet. May be repeated. Special fee for non-majors.

MUSI 753 - Saxophone

Credits: 1.00 to 4.00

Private instruction in saxophone. May be repeated. Special fee for non-majors.

MUSI 754 - Oboe

Credits: 1.00 to 4.00

Private instruction in oboe. May be repeated. Special fee for non-majors.

MUSI 755 - Bassoon

Credits: 1.00 to 4.00

Private instruction in bassoon. May be repeated. Special fee for non-majors.

MUSI 756 - French Horn

Credits: 1.00 to 4.00

Private instruction in French horn. May be repeated. Special fee for non-majors.

MUSI 757 - Trumpet

Credits: 1.00 to 4.00

Private instruction in trumpet. May be repeated. Special fee for non-majors.

MUSI 758 - Trombone

Credits: 1.00 to 4.00

Private instruction in trombone. May be repeated. Special fee for non-majors.

MUSI 759 - Euphonium

Credits: 1.00 to 4.00

Private instruction in euphonium. May be repeated. Special fee for non-majors.

MUSI 760 - Tuba

Credits: 1.00 to 4.00

Private instruction in tuba. May be repeated. Special fee for non-majors.

MUSI 761 - Percussion

Credits: 1.00 to 4.00

Private instruction in percussion. May be repeated. Special fee for non-majors.

MUSI 762 - Jazz Piano

Credits: 1.00 to 4.00

Private instruction in jazz piano. May be repeated. Special fee for non-majors. Permission required.

MUSI 763 - Jazz Guitar

Credits: 1.00 to 4.00

Private instruction in jazz guitar. May be repeated. Special fee for non-majors.

MUSI 764 - Drum Set

Credits: 1.00 to 4.00

Private instruction in drum set. May be repeated. Special fee for non-majors.

MUSI 771 - Counterpoint

Credits: 3.00

Contrapuntal techniques of tonal music. Melodic construction and dissonance treatment through work in species counterpoint and studies in harmonic elaboration and prolongation. Analysis of selected compositions emphasizes the connection between fundamental contrapuntal techniques and the voice-leading of composition. Prereq: MUSI 572 or permission.

MUSI 775 - Composition

Credits: 3.00

Construction of phrases, periods, and short compositions following classical models. Problems of text-setting. Prereq MUSI 572 or permission.

MUSI 776 - Composition

Credits: 3.00

See description for MUSI 775. Prereq: MUSI 775 or permission.

MUSI 777 - Advanced Composition

Credits: 3.00

Continuation of MUSI 776. Individual compositional projects. Prereq: MUSI 776 and permission. May be repeated for credit.

MUSI 779 - Orchestration

Credits: 3.00

Characteristics of band and orchestral instruments both individually and in small (homogeneous) and large mixed groupings. Students study scores, write assignments, and have arrangements performed if possible. Prereq: MUSI 572 or permission.

MUSI 781 - Analysis: Form and Structure

Credits: 3.00

Introduces analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 18th- and 19th century works. Prereq: MUSI 572 or permission.

MUSI 781W - Analysis: Form and Structure

Credits: 3.00

See description for MUSI 781. Writing intensive.

MUSI 782 - Analysis: Form and Structure

Credits: 3.00

Introduction to analytical techniques through the study of representative masterworks: formal and structural elements and their interrelationships. Analysis of 20th- and 21st-century works. Prereq: MUSI 572 or permission.

MUSI 782W - Analysis: Form and Structure

Credits: 3.00

See description for MUSI 782. Writing intensive.

MUSI 795 - Special Studies

Credits: 1.00 to 4.00

A) J.S. Bach, B) Franz Schubert, C) Debussy and Ravel, D) the world of jazz, E) piano literature, F) 19th century French music, G) advanced analysis, H) advanced study in electronic music, I) composition through computer-generated sound, J) woodwind literature, K) brass literature, L) string literature, M) medieval performance practice, N) renaissance performance practice, O) baroque performance practice, P) classical performance practice, Q) 19th century performance practice, R) 20th century performance practice, S) woodwind repair, T) string repair, U) advanced jazz improvisation, V) advanced piano pedagogy, W) advanced accompanying, X) advanced conducting, Y) independent study. Prereq: permission. May be repeated for credit with permission.

Music Education

MUED 595 - Special Projects

Credits: 1.00 to 4.00

Individual investigation, research, or study. Creative projects may be included. Prereq: permission.

MUED 741 - Techniques and Methods in Choral Music

Credits: 2.00

Problems in the organization and performance of high school, college, and community choruses. Techniques of choral conducting and rehearsal, repertory and materials.

MUED 743 - Materials and Methods in Piano Music

Credits: 2.00

Gives potential piano teachers a coherent but flexible approach to the instruction of students of different ages and levels of talent through evaluation of methods and materials and discussion of the role of the private teacher.

MUED 745 - Techniques and Methods in String Instruments

Credits: 2.00

Class and individual instruction. Intensive training on the violin, viola, cello, and double bass. Classroom procedures, establishment of string programs, and evaluation of available methods materials. Permission required.

MUED 746 - Techniques and Methods in String Instruments

Credits: 2.00

See description for MUED 745.

MUED 747 - Techniques and Methods in Woodwind Instruments

Credits: 3.00

Basic course in embouchure formation, tone production, tonguing, fingering and instrument care as applied to each of the woodwinds: flute, oboe, clarinet, bassoon and saxophone. Methods, studies, solos and ensembles most useful with school players of woodwind instruments. Permission required.

MUED 749 - Techniques and Methods in Brass Instruments

Credits: 2.00

Basic course in embouchure formation, tone, tonguing, fingering, flexibility, accuracy, and range development as applied to the trumpet or baritone horn, French horn, and trombone. Methods, studies, solos, and ensembles most likely to be useful with school players of brass instruments. Permission required.

MUED 751 - Techniques and Methods in Percussion Instruments

Credits: 2.00

Basic performance skills on snare drum, timpani, mallet instruments, and other percussion instruments used in bands and orchestras. Materials and methods of instruction. Permission required.

MUED 755 - Vocal Pedagogy

Credits: 2.00

A study of vocal anatomy, vocal function, and teaching methods, with an emphasis on application for singers and voice teachers.

MUED 763 - Jazz Music Methods

Credits: 2.00

Organization and delivery of instruction in jazz. Historical development of jazz styles and the role of each instrument/voice in jazz combos and large ensembles. Reading jazz notation and teaching improvisation. Examination of appropriate literature. Prereq: piano proficiency. Permission required.

MUED 765 - Instrumental Music Methods

Credits: 2.00

Organization and delivery of instruction to groups of instrumental music students. Examination of appropriate curricula and materials, application of instrumental and conducting techniques, structure of rehearsals, assessment of student progress. Prereq: junior standing.

MUED 771 - Marching Band Methods

Credits: 2.00

Role of marching band in the school music program. Design and execution of field shows and parade marching. Understanding of marching percussion and auxiliary units. Examination of appropriate music. Prereq: MUSI 454 and 571.

MUED 790 - Teaching Elementary School Music

Credits: 3.00

Experiential approach toward learning creative strategies for teaching elementary school music. Includes various curricula and methods; philosophy and psychology of music; demonstration of materials and instruments. Observation and teaching in schools. Prereq: piano proficiency.

MUED 791 - Teaching Secondary School Music

Credits: 2.00

Assembling, managing, and teaching junior/senior high school music curriculum. Academic issues of philosophy, curriculum building, application of learning theories, administration, evaluation, motivation, and classroom management combined with field experience in lesson planning and teaching/rehearsal techniques. Prereq: piano proficiency; MUSI 731-732.

MUED 795 - Special Studies

Credits: 1.00 to 4.00

Allows upper-level students to explore individually or in groups areas related to their specific professional interests. Prereq: permission.

Natural Resources

NR 400 - Professional Perspectives in Natural Resources

Credits: 1.00

Lectures by departmental faculty provide an informal look at the various natural resource disciplines and professions represented by the Department of Natural Resources. These presentations acquaint students with our faculty and inform them of some of the exciting research being undertaken in the department. Students also learn of opportunities for professional involvement. Required for all first-semester Natural Resources majors. Cr/F.

NR 401 - Introduction to Natural Resources

Credits: 4.00

Overview of the history, politics, economics, ethics, and ecology involved with the conservation and management of living and non-living natural resources. Sets the stage for subsequent natural resource courses by introducing the scientific basis for natural resource conservation and management. Labs build confidence in map and compass work and provide hands on field experience within the various natural resource disciplines. Debates and discussions of natural resource related hot topics provide opportunities to practice public speaking, problem solving, and critical thinking skills. Restricted to NR majors or by Permission. Lab. Special fee.

NR 403 - Intro to Environmental Science

Credits: 3.00

A multi-disciplinary introduction to Environmental Sciences, presenting basic concepts and controversies in geology, meteorology/hydrology, global biology and biogeochemistry, integrated through the study of the Earth as system. Intended primarily for declared or perspective majors in Environmental Sciences and related programs. Combines lecture and discussion with discovery and presentation experiences to address the history of ideas, and major questions and controversies, both settled and active.

NR 410 - Insects and Society

Credits: 4.00

Insects have had a major impact on human culture throughout the centuries as source of food, an inspiration in literature and art, and a driving force behind social change. We study basic insect biology and ecology with a focus on their relationships to humans. Special fee. Lab.

NR 415 - Global Biological Change

Credits: 4.00

Introduces the biological aspects of global change. Includes historical and physical setting and emphasizes current global biological issues including population growth, land use and deforestation, biodiversity loss, introduced species, industrial N fixation, changes to the carbon cycle, and important interactions between the biosphere hydrosphere and atmosphere.

NR 415H - Honors/Global Biological Change

Credits: 4.00

See description for NR 415.

NR 425 - Field Dendrology

Credits: 4.00

Students study forest trees in natural communities and urban settings. Identification and nomenclature of important North American trees and shrubs is emphasized. Environmental factors influencing tree growth,

combined with study of disturbance history, provide the context for understanding why tree species grow where they do. Students are introduced to the major forest regions of North America. Restricted to NR majors; others by permission. Special fee.

NR 426 - Wood Science and Technology

Credits: 4.00

Wood microstructure and identification: physical, chemical, and mechanical properties; characteristics of wood including those produced by growth and form (e.g., knots, cross-grain) and those produced by degradation (e.g., stain, decay); focused on native and local species of both softwoods and hardwoods; and the role of forests in carbon storage. Special fee. Lab.

NR 433 - Wildlife Ecology

Credits: 4.00

Historical, biological, ecological, and sociological factors influencing the wildlife resource and its management. Concepts in populations, communities, habitat, and contemporary wildlife issues. Special fee. Lab.

NR 435 - Contemporary Conservation Issues and Environmental Awareness

Credits: 4.00

Explores the impacts of technology and human activity on our environment and natural resources. Key conservation issues are used as examples of past and present biological, social, and environmental conflicts. Writing intensive.

NR 435H - Honors/Contemporary Conservation Issues and Environmental Awareness

Credits: 4.00

See description for NR 435. Writing intensive.

NR 444 - Endangered Species: A Bio-political Crossroad

Credits: 4.00

A freshman inquiry course that provides students with a multidisciplinary perspective of endangered species management in the United States. The sociological, economic, and biological forces that influence policy and management of endangered species are explored with guest lectures, student-led discussion, and case-study student seminars. Writing intensive.

NR 444B - The Real Dirt

Credits: 4.00

Explores sustainable agriculture, regional and local food supply and systems, land ethics and agrarian thought as a natural resource and environmental conservation issue. Focusing on northern and central New England, the course uses the teaching of Aldo Leopold and includes hands-on study of UNH's new initiatives in sustainable and organic agriculture and the on-campus food system. A visit to University farms is included. Writing intensive.

NR 444C - Dynamics of a Changing Earth

Credits: 4.00

The history and dynamics of the Earth as a system, considered in 4 general areas: 1. The Solid Earth (age of the Earth, plate tectonics and meteor impacts), 2. The Climate System (general circulation, ice ages, El Nino), 3. The Vegetated Surface (distribution of biomes, biodiversity, human land use), and 4. Element cycles (carbon, nitrogen, oxygen). The human role in modifying natural processes is a crosscutting theme, leading to discussions of current environmental issues. Writing intensive.

NR 444D - Why Hunt

Credits: 4.00

Course examines hunting in America from a multi-disciplinary perspective that addresses biology, technology, history, culture, economics, politics, philosophy and more. The goal is to move people away from their bias and learn/study/inquire of the complexity of this human behavior. Students will look beyond personal and ethical controversies of hunting, as well as the professional link of wildlife management and hunting. Special fee.

NR 444E - Eye of Newt and Toe of Frog: The World of Poisonous Animals

Credits: 4.00

Course examines a variety of animal poisons and venoms in different contexts. Historical, cultural, physiological, pharmacological, and evolutionary viewpoints are explored. Readings, guest lectures, and peer blog entries are used to refine critical thinking skills and form the basis of in-class discussions.

NR 501 - Introduction to Soil Sciences

Credits: 4.00

An overview of physical, chemical, and biological properties of soil. Sub-disciplines of soil chemistry, soil physics, soil microbiology, soil genesis, and classification. Prereq: CHEM 403 or equivalent. Special fee. Lab.

NR 502 - Forest Ecosystems and Environmental Change

Credits: 4.00

Forest ecosystems cover a large fraction of the Earth's land surface and account for most of its terrestrial biological productivity. This course introduces forest ecosystems around the world and explores both the natural processes that regulate them and the environmental factors that cause change over time. Topics include tree growth strategies, successional change, nutrient cycling, and human-induced stressors such as air pollution and climate change. Special fee.

NR 504 - Freshwater Resources

Credits: 4.00

Major determinants of freshwater resources including hydrologic cycle and water balance, precipitation, stream-flow measurement, pollution, water supply and sewage treatment, water resource management and regulation. Special fee. Lab/field trips.

NR 506 - Forest Entomology

Credits: 4.00

Introduces insect biology, behavior, ecology, and control, focusing on the forest environment. Labs include identification to the family level and an insect collection. Special fee. Lab. Writing intensive.

NR 527 - Forest Ecology

Credits: 4.00

Introduces basic and applied ecology of forests, with emphasis on ecosystem processes, including water, energy, and nutrient cycles; biological interactions, including biodiversity and plant-plant, plant-animal, and plant-microbe relationships; and human impacts, including forest management, land-use/land cover-change, and changes in atmospheric chemistry. Prereq: P BIO 412 or BIOL 411. Restricted to NR majors or by Permission. Special fee. Lab.

NR 542 - Forestland Measurement and Mapping

Credits: 1.00

Elementary measuring equipment and techniques; preparation of maps; public land survey; court-house deed search. (Forestry and Wildlife majors only.) Special fee.

NR 599 - Work Experience

Credits:

Work in the field of forestry; must be performed under professional supervision or approved by natural resources faculty. Students are responsible for arranging their own experience. Restricted to Forestry majors. Permission. Cr/F.

NR 601 - Environmental Conservation and Sustainable Living Internship

Credits: 4.00

Practical internship and field experience in a location removed from the University milieu to give the environmental conservation student a dimension and insight into sustainable resource management systems not available in the campus experience. Prereq: permission. Cr/F.

NR 602 - Natural Resources and Environmental Policy

Credits: 4.00

Contemporary natural resource and environmental policy problems/issues are addressed from a policy sciences perspective with emphasis on domestic policy solutions. Critical assessment of major policy initiatives and their implementation toward sustainable resource use and a healthy environment. Public policies are analyzed to determine the extent to which their implementation strategies have succeeded, and to assess their adequacy within a bioregional or ecosystem approach, and/or capacity to integrate economic and environmental decisions. Cases include national and local policies in their global context. Students apply public policy analysis and decision tools in laboratory sessions. Prereq: junior/senior; Restricted to NR majors or by Permission. Special fee. Writing intensive.

NR 615 - Wildlife Habitats

Credits: 4.00

Introduces animal-habitat associations, including an examination of spatial and temporal features of wildlife habitat, the evolution of habitat selection, and how habitat suitability/productivity is evaluated. Prereq: woody plant identification; limited to wildlife management majors and minors. Permission. Special fee. Writing intensive.

NR 621 - Field Description of Soils

Credits: 3.00

Description of soils in the field. Application of soils properties to forestry, plant science, and community planning. Strong orientation to fieldwork. Special fee. Lab.

NR 637 - Practicum in Environmental Conservation

Credits: 4.00

Independent participation in an environmental conservation activity in the area of the student's specialization. Individual or group projects may be developed under the supervision of any faculty member within or outside natural resources or with supervisors in public and private agencies, upon approval of the course instructor. Research projects not acceptable. Prereq: senior standing in the environmental conservation program. Cr/F.

NR 640 - Wildlife Population Ecology

Credits: 3.00

AN overview of the mechanisms that influence the characteristics of terrestrial wildlife populations, especially factors that influence rates of natality and mortality. Additional attention paid to community interactions (especially predation, competition, and invasive species) the roles of exploitation and the influences of habitat loss and fragmentation. The course concludes with an examination of populations and efforts to restore them. Prereq: one course in general ecology; wildlife major or permission of the instructor.

NR 643 - Economics of Forestry

Credits: 4.00

Intermediate-level analyses of supply and demand for forest-based goods and services, managerial

economics, taxation, capital investments. Prereq: EREC 411 or ECON 402.

NR 650 - Principles of Conservation Biology

Credits: 4.00

Examines the major issues relevant to conservation of biodiversity from the genetic to the ecosystem level. In addition to addressing ecological and biological principles, the interdisciplinary nature and challenges of managing for conservation biology, including the role of economic and social factors are examined. Prereq: one semester of biology, botany, or zoology.

NR 655 - Vertebrate Biology

Credits: 4.00

Introduces the diversity and evolution of vertebrates. Topics span the morphological, physiological, behavioral, and ecological diversity among the major vertebrate taxa. Labs stress identification of vertebrate taxa based on specimens and morphological structures. Permission. Prereq: BIOL 411; 412; or equivalent. Special fee. Lab.

NR 658 - Introduction to Geographic Information Systems

Credits: 4.00

Introduces the use of geographic information systems (GIS) for natural resources and related fields. Data models/structures, map projections, data input/output/storage, data analysis/modeling, interpolation, and data quality/standards. Hands-on lab using ArcView 3.x GIS software. Restricted to NR majors or permission. (Also offered as GEOG 658.)

NR 660 - Ecology and Biogeography of New Zealand

Credits: 5.00

Covers the principles of ecology and biogeography, with a distinct focus on New Zealand. Students investigate the processes that have shaped the New Zealand landmass and its biota. Impact of human settlement on New Zealand's ecosystems is explored in-depth. Methods and techniques of scientific research are incorporated in this course. Field exercises focus on topical case studies in a variety of ecosystems and are designed to strengthen students' conceptual knowledge, enable students to apply this knowledge, as well as develop field skills including classification systems, mapping, habitat assessment, field identification, and sampling techniques. Prereq: junior/senior; permission. Coreq: NR 661, NR 662, and NR 663. Special fee.

Co-requisites: NR 661, NR 662, NR 663

NR 661 - Restoration Ecology and Ecosystem Management in New Zealand

Credits: 4.00

Current restoration projects and strategies for management of natural resources in New Zealand form the framework for this course. Solving problems related to introduced species, changes in habitat, the preservation of ecological processes and watershed management are the major foci of this course. Management of resources for multiple uses, as well as primary and extractive industries is included. Field exercises focus on tropical case studies in a variety of terrestrial and coastal-marine ecosystems and include the identification of habitats and communities, stresses on the environment, and risk analysis. Prereq: junior/senior; permission. Coreq: NR 660, NR 662, and NR 663.

Co-requisites: NR 660, NR 662, NR 663

NR 662 - Environmental Policy, Planning and Sustainability in New Zealand

Credits: 3.00

Introduces students to politics in New Zealand. Investigating policy pathways and planning forms part of the curriculum. Students assess scope of legislation, including the Resource Management Act (1991), for the economic and socio-political environment in New Zealand. Government obligations to the Treaty of Waitangi, and customary uses of resources are included as part of this course. Students are exposed to

diverse perspectives of local authority planners and policy makers, local iwi (tribes), the Department of Conservation, and community groups. Students examine case studies involving the resource consent process at several levels of decision-making. Case studies provide a comprehensive overview of the interactions between the environment and people and their cultural and socio-economic needs. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 663

Co-requisites: NR 660, NR 661, NR 663

NR 663 - Applied Directed Research in New Zealand

Credits: 4.00

Working closely with faculty, student teams investigate selected ecological, resource management or policy issues. All projects have scientific and societal relevance, and contribute to ongoing/existing projects in the region. Students use the scientific method to design and carry out their projects. Development of rigorous field investigations, experimental design, data analysis, and scientific writing are emphasized. Students prepare a research report and present their findings in a seminar that includes stakeholders and people from the local community. Prereq: junior/senior; permission. Coreq: NR 660, NR 661, and NR 662. Writing intensive.

Co-requisites: NR 660, NR 661, NR 662

NR 664 - Conservation Genetics

Credits: 4.00

Conservation genetics is the application of genetics to preserve species as dynamic entities capable of coping with environmental change. Includes genetic management of small populations, resolution of taxonomic uncertainties, defining management units within species, and the use of molecular genetic analyses to forensics and the understanding of the biology of species. Topics include methods of measuring genetic diversity in populations, identification of the units of biodiversity to which conservation efforts are directed, genetics of population fragmentation, genetic management of wild and captive populations, reintroduction of organisms back into the wild, and the role of forensics in enforcement and development of species recovery plans. Recitation. No credit if credit received for GEN 705 or ZOOL 705.

NR #665 - Applied American Environmental Philosophy

Credits: 4.00

Applying the philosophical theory underlying environmental studies and approaches to environmental conservation. Students conduct critiques of extensive readings and write papers creatively analyzing aspects of selected philosophical works. Major research manuscript required. (Also offered as AMST 665.) Writing intensive.

NR 701 - Ecological Sustainability and Values

Credits: 4.00

Deeper more fundamental philosophical questions, including spiritual values questions, are being asked concerning the ecological/environmental challenge of our time; its causes and resolution. Aspects of this challenge--environmental education, energy, food, agriculture, and natural resources--analyzed with ethics and values approaches. Students develop ways of responding to problem identification and resolution. Writing intensive.

NR 702 - Workshops

Credits: 1.00 to 4.00

Short-term courses (generally a few days to two weeks) offered off campus, covering a broad variety of environmental and natural resource topics. May be repeated. Special fee required depending on topic. Prereq: permission required.

NR 703 - Watershed Water Quality Management

Credits: 4.00

Principles of land use as they relate to water quality and quantity. Lectures focus on biogeochemical cycles and the watershed approach to land and water resource management. Labs and field trips focus on methods of water sampling and analysis. One year of chemistry is recommended. Prereq: NR 504 or 604 or permission. Special fee. Lab/field trips. Writing intensive.

NR 706 - Soil Ecology

Credits: 4.00

Examines the ecological relationships between soil microorganisms and their biotic and abiotic environment, with emphasis on the role of soil microorganisms in biogeochemical cycling. Specific objectives are to examine the biodiversity present in soil systems, factors controlling microbial community composition and diversity, and linkages between soil microbial communities, soil physical properties, and soil organic matter and nutrient cycling dynamics. Prereq: BIOL 412 or PBIO 412, CHEM 403, or equivalent, or permission. Special fee. Lab. Writing intensive.

NR 707 - Environmental Modeling

Credits: 4.00

Environmental Modeling introduces students to a range of key mathematical and computer modeling concepts and the ways they can be used to address important scientific questions. The course is divided into four topical sections: Population and Community Ecology, Hydrology, Biogeochemistry, and Ecosystems. In each section, modeling concepts and skills are presented together with environmental information to emphasize the linkage between quantitative methods and relevant scientific results. Prereq: MATH 425.

NR 710 - Endangered Species Seminar

Credits: 2.00

Provides students with an interactive class of student presentations and guest lectures by endangered-species biologists. Emphasizes on biological, sociological, economic, and political factors that influence endangered-species policy. Prereq: basic ecology/biology; permission. Special fee.

NR 711 - Wetland Ecology and Management

Credits: 4.00

Analysis of the natural resources of coastal and inland wetlands and environmental problems caused by human use and misuse of these ecosystems. Groups collect field data to summarize the structure and function of four wetland types within a management context. Special fee. Lab. Prereq: BIOL 541, or NR 703, or permission. Writing intensive.

NR 713 - Quantitative Ecology

Credits: 4.00

Applied quantitative techniques: basic concepts in probability and statistics applied to ecological systems, population dynamics, spatial patterns, species abundance and diversity, classification and ordination, production, and energy and nutrient flow. Additional credit for in-depth mathematical analysis of a particular topic. Prereq: intro. courses in calculus, statistics, and ecology. (Not offered every year.) Writing intensive.

NR 716 - Wetland Delineation

Credits: 4.00

Examines the soils, vegetation, and hydraulic functions of coastal and central New England wetlands. Students are responsible for the collection and identification of aquatic plant species, description of wetland soils, and delineation of wetland boundaries. Lectures and fieldwork. For juniors, seniors, and working professionals. Field trips. Special fee. (Offered summer session only.)

NR 718 - Law of Natural Resources and Environment

Credits: 3.00

Federal and state environment statutory and administrative law, its application, strengths and weaknesses, and options for future amendment.

NR 719 - Wetlands Restoration and Mitigation

Credits: 3.00

Assesses the problems of wetlands loss and learning how to repair the damage. Asks what steps can be taken. Does restoration work, can habitat value be replaced, what constitutes equivalent mitigation? Field experience and theoretical background in restoring marine and freshwater environments. First half of course involves field trips to visit and sample mitigation and restoration sites. Second half focuses on student projects using the scientific method to address wetlands issues. Prereq: NR 711 or permission. Special fee. Lab/field trips. (Not offered every year.)

NR 720 - International Environmental Politics and Policies for the 21st Century

Credits: 4.00

Students examine policies for managing human activities to sustain the health of regional ecosystems and planetary life-support systems. Selected problems of the international commons (oceans, marine resources, atmosphere, migratory species); global and regional carrying capacity (population, resource consumption), internationally shared ecosystems (transboundary watersheds and waterbodies, tropical forests); and the relevant international institutions and politics for policy formation, conflict resolution, and implementation. Using a policy-analytic framework, students develop case studies to assess international policies and institutional arrangements to achieve the objectives of Agenda 21--Earth Summit Strategy to Save the Planet. Prereq: permission. Writing intensive.

NR 724 - Resolving Environmental Conflicts

Credits: 4.00

Theories and practices of environmental dispute settlement. Roles of public, non-governmental and governmental organizations. Effectiveness of public participation initiatives in influencing public policy decisions and/or resolving environmental conflicts. Alternative approaches to consensus (policy dialogues, joint problem solving; strategic planning; negotiation, mediation) as well as litigation. Specific cases are critiqued and evaluated; conflict resolution skills are developed. Students observe and/or participate in ongoing local decision processes. Prereq: second-semester juniors, seniors; permission. Lab. Special fee. Writing intensive.

NR 729 - Silviculture

Credits: 4.00

The science and art of establishing, growing, and tending forests to meet multiple objectives. Basics of forest stand dynamics applied to the problems of timber management, wildlife habitat, water quality, and carbon sequestration. Prereq: NR 425 and NR 527 or permission. Special fee.

NR 730 - Terrestrial Ecosystems

Credits: 4.00

Processes controlling the energy, water, and nutrient dynamics of terrestrial ecosystems; concepts of study at the ecosystem level, controls on primary production, transpiration, decomposition, herbivory; links to earth-system science, acid deposition, agriculture. Prereq: NR 527 and P BIO 412 or BIOL 411, or permission.

NR 731 - Ecosystem Based Governance: Policies and Management Strategies

Credits: 4.00

Human stresses have and are taking their toll on the health and integrity of ecosystems worldwide. More and more commentators are stressing the need to switch from traditional top-down natural resource governance strategies to a broader ecosystem-based management (EBM) approach. This class explores current strategies and trends, examines EBM in theory and practice, and ultimately puts theory into

practice with a collaborative effort to design an EBM governance strategy for a geographical region chosen by the class. Prereq: permission.

NR 732 - Chemistry of Soils

Credits: 4.00

Chemical composition of soil; structure of soil minerals; mineral solubility; contaminant sorption by minerals and organic matter; cation and anion exchange processes; and organic reactions in soil, their kinetics and their effects on soil properties. Prereq: CHEM 403 or equivalent. Special fee. Lab.

NR 735 - Land Conservation Principles and Practices

Credits: 4.00

Students gain practical knowledge, understanding and experience in land conservation planning and implementation of options for land protection based on current practice in New Hampshire. By interacting with practitioners, students learn what it takes to implement successful land conservation projects, and conservation stewardship requirements and practices. Prereq: senior standing in the Department of Natural Resources and permission. Special fee. Lab.

NR 738 - Wildlife Policy and Management

Credits: 4.00

Local, regional, and national issues and strategies in policy and administration. Contemporary issues including land management, commercialization of wildlife, overpopulation, endangered species, wildlife diseases, and professionalism. Prereq: senior wildlife majors or permission. Special fee. Lab. Writing intensive.

NR 740 - Inventory and Monitoring of Ecological Communities

Credits: 4.00

Provides an introduction to the major concepts associated with monitoring change in ecological communities. Students develop an appreciation for such issues as: identification of appropriate baselines for comparison; use of indicator species; the tools used to inventory common, rare, and secretive species; how trend data are analyzed; and the implications of failing to detect an indicator species. Restricted to senior wildlife majors others by permission. Special fee. Lab.

NR 741 - Demographic Methods in Conservation Biology and Wildlife Ecology

Credits: 2.00

A survey of quantitative methods used to characterize vertebrate populations. Emphasis placed on application rather than theory. Estimators of survival, responses to exploitation, and evaluation of physiological condition relative to carrying capacity are reviewed. Atudents are also introduced to computer models that are used to simulate age-, stage-, and spatially-structured populations, and how these models can be used to evaluate population viability. Prereq: concurrent or previous enrollment in a course in population ecology or conservation, one course in statistics. Lab. Special fee.

NR 744 - Biogeochemistry

Credits: 4.00

Examines the influence of biological and physical processes on elemental cycling and geochemical transformations from the molecular to the global scale, involving microorganisms, higher plants and animals and whole ecosystems; factors that regulate element cycles including soils, climate, disturbance and human activities; interactions among the biosphere, hydrosphere, lithosphere, and atmosphere; transformations of C, N, S, and trace elements. Prereq: one semester biology and two semesters of chemistry or permission.

NR 745 - Forest Management

Credits: 4.00

Forest land ownership, management objectives, forest inventory regulation and policy, forest administration, professional responsibilities and opportunities. Restricted to Natural Resources majors. Lab. Special fee.

NR 749 - Forest Inventory and Modeling

Credits: 4.00

Applied sampling and statistical techniques for assessing current forest conditions and predicting future growth, yield, and structure. Topics include plot and point sampling, ecological inventory, and evaluation of site quality and stand density. Prereq: MATH 420 and BIOL 528. Special fee.

NR 751 - Aquatic Ecosystems

Credits: 4.00

Energy flow and nutrient cycling in streams, rivers and lakes, with an emphasis on understanding the control of primary productivity, decomposition and community structure by both hydrologic and biotic drivers. Role of aquatic ecosystems in carbon and nitrogen budgets at watershed, regional, and global scales. Impacts of environmental changes such as global climate change and suburbanization on aquatic ecosystems. Prereq: General Ecology.

NR 757 - Photo Interpretation and Photogrammetry

Credits: 4.00

Practical and conceptual presentation of techniques for using remote sensing, specifically aerial photographs, in natural resources. Includes photo measures of scale, area, parallax and object heights; flight planning; photo geometry; an introduction to the electromagnetic spectrum; and photo interpretation and mapping. Concludes with an introduction to digital remote sensing including multi-spectral scanners, radar, and thermal imagery and a brief discussion of geographic information systems (GIS). Applications to forestry, wildlife, land-use planning, earth sciences, soils, hydrology, and engineering. Prereq: algebra. Special fee. Lab. (Also offered as GEOG 757.)

NR 759 - Digital Image Processing for Natural Resources

Credits: 4.00

Introduces digital remote sensing including multispectral scanners (Landsat and SPOT) radar, and thermal imagery. Hands-on image processing including filtering, image display, ratios, classification, registration, and accuracy assessment. GIS as it applies to image processing. Discussion of practical applications. Use of ERDAS image-processing software. Knowledge of PCs required. Prereq: NR 757 or equivalent and permission. (Also offered as GEOG 759.)

NR 760 - Geographic Information Systems in Natural Resources

Credits: 4.00

Theory, concepts, and applications of geographic information systems (GIS) for use in natural resources and related fields. Discussion of database structures, sources of data, spatial data manipulation/analysis/modeling, data quality standards and assessment, and data display/map production including many examples and practical applications. Hands-on lab exercises using ArcGIS 8.x software. Permission. Lab. (Also offered as GEOG 760.)

NR 765 - Community Ecology

Credits: 4.00

Properties of biotic communities, especially biodiversity. Effects of physical stress, disturbance, competition, predation, positive interactions, and dispersal on community properties. Community dynamics, including succession and stability. Prereq: applied biostatistics and general ecology. Lecture and discussion.

NR 767 - Earth System Science

Credits: 4.00

Introduces the study of Earth as an integrated system. Investigates the major components (e.g., atmosphere, biosphere, cryosphere, hydrosphere, and lithosphere), dynamics (e.g., energy balance, water cycle, biogeochemical cycles), and changes within the earth system. Emphasizes the interactions and feedbacks within the system. The links between components are presented by examining present day processes and selected events in Earth's history. The lab portion examines these concepts through the development and use of computer models of Earth system processes. Prereq: MATH 424B; MATH 425; or permission. Lab.

NR 782 - Monitoring Forest Health**Credits: 4.00**

Provides the field and remote sensing tools and experience needed by students to assess forest conditions at the individual tree and stand levels, as well as to conduct independent research projects on specific topics of interest. May include assessing change-over-time, landscape-level impacts of urban developments, severe weather events, and other natural and anthropogenic perturbations affecting the health of forests. Forest damage due to insects, air pollution (primarily ground-level ozone), drought, the 1998 ice storm, and others are investigated. Lab. Special fee. Permission.

NR 783 - Forest Communities of New Hampshire**Credits: 4.00**

A hands-on field course designed to introduce students to the diverse forest community types of New Hampshire. Topics include 1) field identification of forest types using different classification systems and keys; 2) identification of characteristic plant and animal species; 3) the roles of climate, geology, soils, natural disturbance, forest management, and biotic factors in determining forest community type; 4) primary and secondary succession, including old-growth. Prereq: one course in ecology or environmental biology or permission. Special fee.

NR 784 - Sustainable Living**Credits: 4.00**

Concepts of sustainability are explored in a learning-community format. The importance of human communication, sense of place and time, and the health and longevity of the human species as part of natural systems is emphasized. Students develop measures for sustainable living, including ecological foot-printing, and gain an understanding of system conditions necessary to move toward sustainable living. Two required field trips. Special fee.

NR 785 - Systems Thinking for Sustainable Living**Credits: 4.00**

Introduces systems thinking from a sustainable living perspective. The course is a collaborative inquiry using a problem-solving approach. After studying different types of systems and learning a variety of tools useful in systems analysis, we ask "In what ways can systems thinking be employed to understand and begin to resolve the complex problems that face us as we move toward living within limits of natural systems?"

NR 791 - Project in Environmental Science I**Credits: 1.00**

First part of a two-course capstone project sequence for Environmental Science majors. Intended for second semester Juniors, this course requires selection of a topic area, and initial library and background research, leading to a statement of the problem to be addressed. To be followed by NR 792. Restricted to Environmental Science majors. Cr/F.

NR 792 - Project in Environmental Science II**Credits: 3.00**

Second part of a two-course capstone project sequence for Environmental Science majors. Intended for first semester Seniors. In this course, students carry out the project defined in NR 791. Results are summarized in a format appropriate for professional presentation or publication. Students are expected to present their results as part of the Undergraduate Research Conference the following spring semester. Restricted to Environmental Science majors.

NR 795 - Investigations

Credits: 1.00 to 4.00

Investigations in Natural Resources may include topics in environmental conservation, forestry, soil and watershed management, ecosystems, and wildlife management. Permission required.

NR 795W - Investigations

Credits: 1.00 to 4.00

See description for NR 795. Writing intensive.

NR 797 - Special Topics

Credits: 1.00 to 4.00

An experimental course for the purpose of introducing a new course or teaching a special topic for a semester in an area of specialization in natural resources. Permission required. Special fee on some sections.

NR 799 - Honors Senior Thesis

Credits: 4.00

Honor/thesis students conduct an independent research project, relevant to the student's area of specialization in the major, under the direction of a faculty sponsor. Students submit a research proposal, write a final report, and provide an oral presentation. Two semester sequence; IA (continuous grading) grade given at the end of first semester. Restricted to Senior/Natural Resource Majors. Permission. Writing intensive.

Nursing

NURS 400 - Nursing Continuing Enrollment

Credits:

RN-BS students are required to maintain continuous enrollment each semester of the academic year until their degree is formally awarded by registering for course credit at the University of New Hampshire Durham or Manchester or registering for NURS 400, Continuing Enrollment. Students registering to NURS 400 will pay a continuing enrollment fee. No credit. Special fee.

NURS 450 - Making Babies: Technology, Nature, and Social Context

Credits: 4.00

Examines the process of human birth focusing on the emergent technologies of human genetics, assisted fertility technologies, prenatal diagnosis and treatment, as well as the appropriate and inappropriate use of technology through the labor, delivery, and post-partum experience. The social, cultural, political, and historical context for the development and application of these technologies is explored.

NURS 500 - Introduction to Professional Nursing

Credits: 2.00

The course provides an overview of professional nursing with a focus on reflective thinking. A synthesis of current and projected trends in nursing practice and education, with an introduction to topics on ethical, social, and legislative issues, are explored. This course is divided into five modules: nursing as a career, nursing as a profession, nursing as art and science, nursing as communication, and nursing and relationship-centered care. Prereq: ZOOL 507-508; majors only. Pre- or Coreq: MICR 501. Special fee.

Co-requisites: NURS 504, NURS 506, NURS 512

NURS 501 - Introduction to Nursing

Credits: 4.00

Examines the values and philosophy of the Department of Nursing. Explores the four domain concepts of nursing: health and how it is defined, the diverse clients served by nursing, nursing as a profession, and the complex environment within which nursing is practiced. The nature of nurse-client encounters is explored with an emphasis on teaching students the skills to interact in a caring, facilitative manner. Prereq: permission. Special fee.

NURS 502 - Concepts of Pathophysiology/Pharmacology

Credits: 4.00

Focuses on concepts of pathophysiology/pharmacology relevant to nursing practice. The physiologic response and manifestations of alterations in normal body functioning are analyzed and the effects of pharmacological agents on these alterations are examined. Prereq: ZOOL 507-508; MICR 501; majors only.

NURS 504 - Disease and Drugs I

Credits: 4.00

The two semester course advances knowledge of human physiology and the pathophysiological variations in selected global disease states in adults and children. Student explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: ZOOL 507-508; majors only.

Co-requisites: NURS 500, NURS 506, NURS 512

NURS 505 - Diseases and Drugs II

Credits: 4.00

The two semester course advances knowledge of human physiology and the pathopsychological variations in selected global disease states in adults and children. Students explore how the human body uses its adaptive powers to maintain a steady state and how alterations affect normal processes. Pharmacological agents used on these alterations are examined. Prereq: NURS 500; majors only.

Co-requisites: NURS 601

NURS 506 - Lifespan Development, Interaction, and Learning for Professional Practice

Credits: 4.00

The course emphasizes human development, interaction and learning across the lifespan as essential to safe, effective relationship-centered care. An exploration of selected theoretical perspectives on human development, education and learning and group development prepares students to engage in professional practice. Prereq: ZOOL 507-508; majors only.

Co-requisites: NURS 500, NURS 504, NURS 512

NURS 508 - Foundations of Nursing Judgment

Credits: 4.00

Focuses on the knowledge and analytical skills required to adequately assess the health status of individuals. Students learn how to collect data using an assessment framework, analyze the data, and identify client resources and problems. Emphasizes the implications of the individual's developmental status, culture, and biologic variations at all points in the assessment process. Prereq: ZOOL 507-508; NUTR 400; MICR 501; PSYC 401; NURS 501; majors only.

Co-requisites: NURS 502, NURS 514

NURS 512 - Introduction to Nursing Interventions

Credits: 4.00

This course focuses on developing knowledge, skills, and attitudes necessary for completing health assessments across the lifespan. History taking and assessment skills are utilized to identify and prioritize healthcare needs in order to develop appropriate interventions to assist clients within their situational contexts to promote health and make lifestyle changes. Students explore principles of health promotion throughout the lifespan in a variety of settings across the healthcare continuum. Prereq: ZOOL 507-508. Majors only. Special fee.

Co-requisites: NURS 500, NURS 504, NURS 506

NURS 514 - Techniques of Clinical Nursing

Credits: 4.00

Focuses on the acquisition of psychomotor and assessment skills required for the delivery of safe nursing care. Students begin by learning clinical skills in the simulation setting and then using those skills with supervision in the clinical setting. An additional focus of this course is understanding fundamental nursing concepts as they pertain to providing safe, effective care. Prereq: ZOOL 507-508; NURS 501; majors only. Lab. Special fee.

Co-requisites: NURS 508

NURS 535 - Death and Dying

Credits: 4.00

Encompasses peoples' responses to death throughout the lifecycle. Theories of death, dying, and grieving discussed. Students explore cultural influences, legal, and ethical dilemmas; the biopsychosocial needs of people facing life-threatening situations; resources for care of the dying; death rituals; and surviving a major loss. Writing intensive.

NURS 595 - Women's Health

Credits: 4.00

Examines women's health and women's health care from historical, political, and social perspectives. Discussion of societal and health-care constraints that hinder women from achieving their full health potential. Also presents information on women's health care practices, including the concept of self-care, and relates this to development of educated consumerism in the health-care system.

NURS 601 - Function and Wellbeing of Older Adults

Credits: 4.00

This course focuses on developing knowledge necessary for promoting healthy aging and wellness across the lifespan. Multidimensional assessment skills are utilized to develop appropriate evidence-based interventions to assist individuals and families to maintain wellness and promote healthy lifestyles and enhance the quality of life for older adults with acute and chronic conditions. Students will explore nursing issues and principles of promoting wellness across the health care continuum including end of life and palliative care. Prereq: NURS 500; majors only. Special fee.

Co-requisites: NURS 505

NURS 606 - Seminar on Professional Nursing

Credits: 7.00

The role of health professionals from historical, social, political, economic and technical view points. Individual student examinations of values, attitudes and beliefs regarding professional role in relation to current nursing theory and practice. Open to RN students only by permission. Prereq: NURS 645. Writing intensive.

NURS 611 - Care of the Adult with Acute Illness I

Credits: 4.00

The first of two courses focused on adult health nursing of clients with commonly occurring disease states in the acute care setting. Course builds on previously learned knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to cardiovascular, hematologic, pulmonary, endocrine and renal systems. The advanced skills and techniques required to care for clients with commonly occurring disease states is included. Prereq: NURS 505; majors only.

Co-requisites: NURS 611C, NURS 626, NURS 641

NURS 611C - Care Adult Acute Ill I Clinic

Credits: 2.00

Designed to provide the student with opportunities to apply the nursing process and clinical judgment within an acute care setting to clients with commonly occurring disease states. The experience focuses on the application of knowledge and skills, evidence-based practice, clinical judgment and relationship-centered care. Prereq: NURS 505; majors only. Special fee.

Co-requisites: NURS 611, NURS 626, NURS 641

NURS 612 - Care of the Adult with Acute Illness II

Credits: 2.00

This is the second of two courses focused on adult health nursing of clients with commonly occurring disease states in acute care nursing. The course builds on previously learned knowledge of physical assessment and technical skills to focus on key components of acute care nursing. Special emphasis is placed on the etiology, clinical evaluation and use of evidence-based nursing interventions to manage specific health problems related to gastrointestinal, neurological, musculoskeletal systems and clients undergoing surgery. Complex client issues related to oncologic, immunologic and shock states are introduced. The advanced skills and interventions required to care for clients with commonly occurring disease states and those undergoing surgery are included. Prereq: NURS 611; majors only.

Co-requisites: NURS 616C, NURS 627

NURS 612C - Care of the Adult with Acute Illness II Clinical

Credits: 2.00

Course is designed to provide the student with opportunities to apply the nursing process and clinical judgment within an acute care setting to clients with commonly occurring disease states and those undergoing surgery. The experience focuses on the application of knowledge and skills, evidence-based practice, clinical judgment and relationship-centered care. Prereq: NURS 611; majors only. Special fee.

Co-requisites: NURS 612, NURS 627

NURS 613C - Care of the Adult with Acute Illness III, Clinical Concentration

Credits: 2.00

Designed to provide the student with an intensive and concentrated opportunity to apply the nursing process and clinical judgment within an acute care setting to clients with multiple health deviations and polypharmaceutical interventions. Students refine organizational skills in delivering comprehensive nursing care to two or more clients. In addition, students enhance their communication and teaching/learning skills by assuming a leadership role in the care of a client group. Prereq: NURS 612; majors only. Pre- or Coreq: NURS 612C.

Co-requisites: NURS 627

NURS 615 - Adult Health Nursing

Credits: 4.00

Addresses the professional nursing practice, decision making processes, strategies and interventions as they relate to the care of adults who are experiencing chronic illnesses, acute illnesses, or impending death. The perspective adopted emphasizes the functional issues of daily living that these illnesses impose and the meanings these illnesses have for adults and their families within cultural, socioeconomic, sociopolitical, physical, and personal contexts. Prereq: first semester junior nursing major. Prereq: NURS 502, 508, 514.

Co-requisites: NURS 615C

NURS 615C - Adult Health Nursing Clinical

Credits: 4.00

Prereq: NURS 502, 508, 514. **Co-requisites:** NURS 615

NURS 616 - Relationship-Centered Care: Living with Mental Illness Across the Lifespan

Credits: 4.00

This course is designed to provide an understanding of acute and chronic mental illness across the lifespan. Neurobiological sciences, psychosocial concepts and current traditional/nontraditional somatherapies are explored. Emphasis is placed on evidence-based practice in the field of psychiatric nursing supported by the Scope and Standards of Psychiatric - Mental Health Nursing Practice. The hallmark of this course is founded on relationship-centered care as a vehicle for healthcare delivery.

Prereq: NURS 505; majors only.

NURS 617 - Nursing and Healthcare Policy

Credits: 3.00

Examines the nature and quality of health care delivery systems and health related social programs from a nursing perspective. Critical thinking skills and strategies needed by professional nurses to participate in health care planning and health care consumer advocacy for improved health services emphasized.

Prereq: for R.N.s with at least one year of clinical experience or permission.

NURS 618 - Caring for People with Alterations in Mental Health

Credits: 2.00

Provides an understanding of the concepts of mental health and major factors affecting human behavior

and interaction. Specific theoretical concepts guiding nurse-client interactions are used as a vehicle for supporting the person's and family's optimum state of well-being. Prereq: NURS 622.

Co-requisites: NURS 618C

NURS 618C - Caring for People with Alterations in Mental Health

Credits: 2.00

Emphasis on the practice of psychiatric nursing as being grounded on certain empirical, aesthetic, personal, and ethical knowledge. Nursing process and a situation-based interpretive approach serve as a framework for professional action. Through a variety of clinical experiences, the student applies mental health concepts/principles of interaction. Prereq: NURS 622.

Co-requisites: NURS 618, NURS 624C

NURS 619 - Clinical Decision Making I

Credits: 4.00

To practice effectively nurses must be able to gather data, interpret its meaning, take actions based on an understanding of the data, and evaluate outcomes. They also must be aware of the processes used to reach conclusions and be prepared to revise, adapt, or reject them. The course focuses on teaching learning theory, ethical decision making, and helping clients and families deal with situational and maturational crises, using a critical thinking framework. Prereq: first-semester junior nursing majors; NURS 501; 502; 508; 514 Special fee. Writing intensive.

Co-requisites: NURS 615

NURS 620 - Caring for the Childbearing and Childrearing Family

Credits: 4.00

This course has family as the focus for nursing practice, introducing the student to the care of young families throughout pregnancy, birth and child-rearing periods. Healthy transitions and physical alterations occurring from conception through adolescence are examined. The health needs of the family are discussed in terms of major morbidity/mortality and contemporary issues. Experience in various clinical settings provides opportunities for the development of professional practice roles. Prereq: second semester junior nursing major.

Co-requisites: NURS 620C

NURS 620C - Caring for the Childbearing and Childrearing Family Clinical

Credits: 3.00

Special fee.**Co-requisites:** NURS 620

NURS 621 - Maternal and Newborn Nursing

Credits: 4.00

The students will integrate evidence using a holistic framework in the provision of safe nursing care to child-bearing families. Emphasis placed on prenatal, intra- and post-partal processes. Student assimilate knowledge and skills in a variety of care settings. Prereq: NURS 505; majors only. Special fee.

NURS 621C - Maternity Nursing Clinical

Credits: 3.00

This clinical component of NURS 620, a course that has family as the focus for nursing practice, introducing the student to the care of young families throughout pregnancy, birth, and child-rearing periods. The health needs of the young family are discussed in terms of major morbidity/mortality and contemporary issues. This survey course offers students experiences in various clinical settings in order to provide opportunities for the development of professional practice roles in maternal health.

Co-requisites: NURS 620

NURS 622 - Clinical Decision Making II

Credits: 4.00

Emphasizes the clinical decision making process in the nursing care of individuals, families, and communities across the lifespan and from diverse backgrounds. Builds upon the theoretical foundation developed in 619, Clinical Decision Making I. Students strengthen expertise in developing clinical judgments, interventions, and outcome evaluations. Skills predicated upon attending to and processing relevant information from clinical situations. Students apply knowledge from clinical nursing courses in a variety of ways. Prereq: second-semester junior nursing majors; NURS 619; or RN student.

NURS 624 - Nursing in the Community**Credits:** 2.00

Explores the role of community health nursing in health promotion, disease prevention, and long-term care. Analyzes contemporary community health problems with implications for community health nursing. Explores a variety of clinical and population-focused roles in primary, secondary, and tertiary prevention of health problems. Prereq: second semester junior nursing major.

Co-requisites: NURS 624C

NURS 624C - Nursing in the Community**Credits:** 2.00

Special fee.**Co-requisites:** NURS 618C, NURS 624

NURS 626 - Clinical Reasoning and Judgment I**Credits:** 2.00

A two semester course designed to apply and analyze clinical reasoning and judgment in a variety of situations, focusing on the ability to prioritize and individualize evidence based nursing interventions. Prere: NURS 505; majors only. Special fee.

Co-requisites: NURS 611, NURS 611C, NURS 641

NURS 627 - Clinical Reasoning and Judgment II**Credits:** 2.00

A two semester course designed to apply and analyze clinical reasoning and judgment in a variety of situations, focusing on the ability to prioritize and individualize evidence based nursing interventions. Prereq: NURS 505; majors only.

Co-requisites: NURS 612, NURS 612C

NURS 641 - Translating Research for Practice**Credits:** 4.00

The course focuses on the translation of current evidence into nursing practice through the identification of practice issues, appraisal and application of evidence, and the evaluation of outcomes. Development of evidence is examined using the research process. Concepts explored include research ethics and legal precepts, clinical judgment in knowledge development and application, and the integration of client values and preferences. Students learn to use reliable evidence to inform practice and make clinical judgments to promote nursing best practice. Prereq: NURS 505; majors only.

Co-requisites: NURS 611, NURS 611C, NURS 626

NURS 645 - Research**Credits:** 4.00

Focuses on enhancing the student's ability to evaluate, read, comprehend, participate in, and apply research to the practice of nursing. Pre or Coreq: statistics.

NURS 645W - Research**Credits:** 4.00

See description for NURS 645. Writing intensive.

NURS 655 - Community Health Nursing I

Credits: 3.00

Explores role of community health nursing in health promotion, disease prevention and long term care at the population level. Identifies population at risk and implications for aggregate level nursing care. Open to RN students only by permission. Prereq: NURS 606.

NURS 656 - Community Health Nursing II: Individuals, Families, and Aggregates

Credits: 2.00

Explores a variety of contemporary topics relevant to community health and community health nursing practice at the individual, family, and aggregate levels. Students have the opportunity to explore clinical focused roles of the community health nurse in primary, secondary, and tertiary prevention of health problems in individuals, families, and aggregates at risk across the life span. Evolving roles and responsibilities of a variety of community health nurse specialists introduced. Students collaborate with multidisciplinary health professionals in planning, providing, and evaluating health services to these specific at risk populations. May be repeated. Prereq: registered nurses only; NURS 606; permission.

Co-requisites: NURS 656C

NURS 656C - Community Health Nursing II/Clinical

Credits: 1.00

Experience in various clinical settings to provide opportunities for the development of the community health nursing role. Students collaborate with multidisciplinary health professionals in planning, providing, and evaluating health services to population at risk. Prereq: open to RN students only by permission.

Co-requisites: NURS 656

NURS 694 - Special Topics

Credits: 1.00 to 4.00

Specialized courses covering information not normally presented in regular course offerings. Description of topics will vary. May be repeated but not duplicate areas of content. Prereq: permission. (Not offered every year.)

NURS 695 - Independent Study

Credits: 2.00 to 4.00

In-depth study with faculty supervision. Prereq: junior standing and approval of adviser and faculty of the area concerned. May be repeated for different topics.

NURS 702 - Child Health Nursing

Credits: 2.00

The course considers the child in the context of family as the focus for nursing practice, introducing the student to the care of children using a developmental approach. Commonly occurring health transitions and alterations occurring from infancy through adolescence are examined. A survey of child health explores both professional practice roles of the pediatric nurse in health promotion and illness as well as acute and chronic conditions that impact children at various stages of development. Prereq: NURS 613C; majors only.

Co-requisites: NURS 704, NURS 704C

NURS 703 - Nursing Leadership/Management and the Organizational Context

Credits: 4.00

Focuses on understanding ways in which the nurse can affect the organizations in which practice occurs and ways in which the organizations affect the individual's practice. Emphasizes issues of leadership; management; power; change; motivation; and interfacing of autonomous, dependent, and interdependent nursing functions in current and future health care delivery systems. Prereq: first-semester senior nursing

majors; NURS 622. RN students should take NURS 703W. Special fee.

NURS 703W - Nursing Leadership/Management and the Organizational Context

Credits: 4.00

See description for NURS 703. Writing intensive.

NURS 704 - 21st Century Public Health Nursing

Credits: 4.00

This writing intensive course prepares the student for population focused practice. Emphasis is placed on the synthesis of concepts, theories, knowledge and practice from nursing and public health sciences. Students explore the concepts of: community as client, community assessment, health promotion, health protection, illness prevention and vulnerability from a public health nursing perspective. Prereq: NURS 613C; majors only.

Co-requisites: NURS 702, NURS 704C

NURS 704C - 21st Century Public Health Nursing Clinical

Credits: 4.00

Students are prepared for population focused practice. Emphasis is placed on the application of concepts, theories, knowledge and practice from nursing and public health sciences. Students conduct a comprehensive community assessment to develop, implement and evaluate populations focused interventions. Prere: NURS 613C; majors onyl.

Co-requisites: NURS 702, NURS 704

NURS 705 - Contemporary Leadership within Health Care Systems

Credits: 4.00

The course explores the dynamic nature of the healthcare system and practice environments that impact nursing. Emphasis is placed on relationship of ethics, power, change, conflict, communication and politics in health care systems. Focus is placed on the use of models of leadership and management to effectively negotiate change, provide safe quality care, and promote professional practice in the delivery of relationship-centered care. Prereq: NURS 702; NURS 704; NURS 704C; majors only.

Co-requisites: NURS 721

NURS 710 - Families in Health and Illness

Credits: 4.00

Seminar focuses on the family environment as a context for the experience of health and illness. Current middle-range theories and research from nursing and other disciplines analyzed for their application to family health. Public policy initiatives related to family health explored.

NURS 719 - Professional Nursing Practice: Transitions

Credits: 7.00

Provides opportunity for students to refine and integrate previously learned knowledge and skills into professional practice through a cooperatively designed learning experience/environment. Open to R.N. students only, by permission. Prereq: NURS 606, 655, 656, 656C.

NURS 720 - Clinical Decision-Making III

Credits: 6.00

Provides the student with the opportunity to integrate prior learning and experience, reflect on individual practice, and transition to professional practice in a career as a Registered Nurse. Emphasizes the refinement of professional skills related to leadership, management, problem solving, clinical and ethical decision-making, critical thinking, interpersonal communication, information management, and working as a productive team member. The weekly seminar provides an opportunity for the analysis, synthesis, refinement, and integration of nursing knowledge and practice. Regularly scheduled standardized tests are

used to assess student progress and to provide timely feedback to facilitate the student's transition to professional practice. Special fee. Prereq: all nursing major courses.

Co-requisites: NURS 720C

NURS 720C - Clinical Decision-Making III Clinical

Credits: 6.00

Refine and integrate previously learned knowledge and skills into professional practice through a cooperatively designed learning experience/environment.

Co-requisites: NURS 720

NURS 721 - Integrating Professional Nursing Practice

Credits: 8.00

The course provides students with the opportunity to advance their ability to synthesize and apply knowledge of concepts and theories to demonstrate nursing program competencies. Prereq: NURS 702, 704, 704C; majors only. Special fee.

Co-requisites: NURS 705

NURS 794 - Special Topics

Credits: 1.00 to 4.00

Specialized courses covering information not normally presented in regular course offerings. Description of topics varies. May be repeated but not in duplicate areas of content. Prereq: permission. Special fee on some sections

NURS 794W - Special Topics

Credits: 1.00 to 4.00

See description for NURS 794. Writing intensive.

NURS 797 - Honors Thesis

Credits: 1.00 to 4.00

Honors seminar designed to expand the knowledge and skills presented in previous honors in major courses. Focuses on a project relevant to the discipline of nursing under the direction of a faculty adviser. Open to honors-in-major and senior nursing majors. Students must complete two semesters of work 1 cr. in fall, and 4cr. in spring. Writing intensive.

Nutritional Sciences

NUTR 400 - Nutrition in Health and Well Being

Credits: 4.00

This course is designed to teach the scientific principles of human biology using nutritional concepts to promote personal health and well being. Special fee. Students cannot earn credit for this course if they have taken ANSC 400 or NUTR 475.

Co-requisites:

NUTR 400H - Honors/Nutrition in Health and Well Being

Credits: 4.00

See description for NUTR 400.

NUTR 401 - Professional Perspectives on Nutrition

Credits: 1.00

This survey course examines the many opportunities for dietitians and nutrition science professionals, from farm to fork, to health and nutrition outcomes. Students have the opportunity to meet and interact with department and university faculty. They explore the many career paths and nutrition strategies used by those in the food and nutrition science fields. Legal and ethical considerations for these professionals are discussed. Content areas for specialization in nutrition sciences, dietetics, nutrition and wellness are reviewed as well as those topics explored via the Ecogastronomy dual major. Prereq: NUTR major. Cr/F. (Fall semester only).

NUTR 405 - Food and Society

Credits: 4.00

Consideration of the cultural significance of food, emphasizing historical, psychological, social, political, and economic aspects. Also offered as ANSC 405. (Spring semester only.) Writing intensive.

NUTR 476 - Nutritional Assessment

Credits: 4.00

Designed for the student who plans to enter the health care profession. Introduces the concepts of nutritional assessment and the practical application of these concepts in the nutritional care of clients in clinical, community, and research settings. Prereq: NUTR 400.

NUTR #503 - Principles of Food Service Management

Credits: 3.00

Practical experience in methods of purchasing and handling food, tools, and equipment used in quantity food preparation, lab experience in selective settings. May be taken independently of NUTR 504. Prereq: HMG 403 or permission of instructor. (Fall semester only.)

NUTR 504 - Managerial Skills in Dietetics

Credits: 3.00

Emphasizes the basic principles of managing clinical, community, and food service operations, including personnel management, in-service and on-the-job training, policies and procedures development, and financial management. (Spring semester only.)

NUTR 506 - Nutrition and Wellness

Credits: 4.00

This course assists students in making informed decisions affecting personal and societal wellness. It

emphasizes the dimensions of wellness, including the impact of psychological, emotional and physical health, as well as environmental influences that affect behavior.

NUTR 510 - Nutrition Education and Counseling

Credits: 4.00

Principles, methods, skills and materials involved in nutrition education and counseling. Emphasizes development of educational materials and practicum skills necessary to perform as an effective nutrition counselor. (Fall semester only.) Prereq: Nutrition major or permission.

NUTR 546 - Nutrition in Exercise and Fitness

Credits: 4.00

An in-depth look at the facts and fallacies behind eating for optimal health and physical performance. Topics include gaining and losing weight, nutritional supplements for optimal performance, disordered eating, protein supplementation, and proper training diets. Prereq: NUTR 400 or equivalent.

NUTR 547 - Nutrition and Athletic Performance

Credits: 4.00

Practical applications of nutritional strategies that maximize athletic performance. Intended for college athletes, trainers, and coaches, as well as high-school coaches and physical education instructors. Topics include: the role of nutrition in athletic performance; training diets; nutritional strategies before, during, and after athletic events; nutritional strategies before, during, and after athletic events; nutritional strategies to support muscle building and body fat reduction; evaluation of performance enhancing supplements. No previous formal training in nutrition is necessary, as long as the student is highly motivated. General nutrition for general health and wellness is not covered. No credit for students who have completed NUTR 546. No prerequisite. Classes are presented with web-based software through the internet.

NUTR 550 - Food Science: Principle and Practice

Credits: 4.00

Principles of food composition structure and properties and the chemical changes foods undergo in preparation and processing. Study of the laws and regulations that are applied to marketing food systems; principle and practice in food preservation. Application of scientific principles and interpretations of laboratory findings. Prereq: HMG 403, NUTR 400, CHEM 403-404, and CHEM 545-546. Special fee. Lab. (Spring semester only.)

NUTR 595 - Mediterranean Diet and Culture

Credits: 4.00

Is there a diet that allows one to eat, drink, and still be healthy? While Americans struggle with rising rates of obesity and related health conditions, inhabitants of the Mediterranean region enjoy relatively low rates of heart disease, cancer, and obesity. Offers a unique on-site experience in Ascoli Piceno, Italy to investigate the cultural and scientific importance of the Mediterranean Diet. Students review basic nutrition concepts as well as the history and evolution of the Mediterranean diet. Combining lecture, discussion, and experiential activities, NUTR 595 is offered through the UNH Italy Study Abroad Program during the summer session.

NUTR 600 - Field Experience in Nutrition

Credits: 1.00 to 4.00

Supervised field experience in public and private agencies with planned learning objectives related to the areas of clinical and community nutrition and food service management. Students are responsible for their own transportation; faculty member coordinates arrangements with fieldwork sites. Prereq: NUTR majors and minors only; permission; NUTR 400. May be repeated for a maximum of 6 credits. Cr/F.

NUTR 600W - Field Experience in Nutrition

Credits: 1.00 to 4.00

See description for NUTR 600. Cr/F. Writing intensive.

NUTR 650 - Life Cycle Nutrition

Credits: 4.00

Comprehensive review of the nutritional issues related to the life cycle. The nutrient requirements of each stage of the life cycle are analyzed in the context of their metabolic functions. The course also involves the practical application of theory at each stage of the life cycle through projects and discussion. Prereq: NUTR 400. (Spring semester only.) semester only.) Nutrition majors only or by permission. Nutrition majors only or by permission.

NUTR 680 - Practicum in Weight Management

Credits: 2.00

Provides exposure to the knowledge and practical experience for conducting a weight management program. Includes fundamentals of diet analysis, clinical assessment, fitness testing, testing interpretation of an exercise prescription and dietary modification. Students are responsible for giving oral presentations in weekly classes to the clients as well as monitor clients' performance throughout the program. Prereq: NUTR 400, 476, 610 and permission.

NUTR 698 - Introduction to Ecogastronomy

Credits: 4.00

This interdisciplinary course is an introduction to the principles and practices of Ecogastronomy that will build a foundation for understanding the connections among agriculture, food production, ecology, ethics, cuisine, nutrition and health within the framework of sustainability. The course includes guest lectures, class discussion, film reviews, field trips and food tastings. The course uses the Blackboard course management system and Course Participation System (CPS, or "clickers").

NUTR 699 - Independent Study

Credits: 1.00 to 4.00

Scholarly research project or supervised teaching experience in an area of the nutritional sciences under the guidance of a faculty adviser. May be repeated. Prereq: permission. Cr/F.

NUTR 699W - Independent Study

Credits: 1.00 to 4.00

See description for NUTR 699. Cr/F. Writing intensive.

NUTR 700 - Career Development in Dietetics

Credits: 1.00

This course prepares the student for a dietetic internship through investigation of supervised practice concentrations that meet their career goals. Course also emphasizes resume writing, interviewing, and professional skills. Cr/F.

NUTR #709 - Nutritional Epidemiology

Credits: 4.00

Introduces the principles and applications of nutritional epidemiology. The major methods of nutritional assessment are reviewed in relation to nutritional epidemiology; the evidence of diet-disease relationships is examined. Course activities include lecture, discussion participation, presentations, and group work. Prereq: NUTR 400, introduction to statistics. Permission required.

NUTR 711 - Lipid Metabolism

Credits: 4.00

Structure, metabolism, and function of lipids and their impact on health and disease. Prereq: NUTR 400

and a biochemistry course.

NUTR 720 - Community Nutrition

Credits: 4.00

Solutions to the complex public health nutrition problems require cost-effective, community-based interventions that identify and address their multiple causes. From food insecurity to the challenges of escalating obesity rates, the community nutritionist is a key player in designing prevention, intervention and health promotion programs and policies. Provides the skills and tools needed to assess, implement, and evaluate community nutrition interventions. Prereq: NUTR 400. Nutrition majors only, or by permission. Writing intensive.

NUTR 725 - Metabolic Adaptations to Exercise II

Credits: 4.00

Examines the regulation of cellular metabolism in muscle, liver, adipose and other tissues of the body by enzymes, effectors, and hormones in response to exercise. Focuses on the exercise-induced mechanisms for controlling metabolic pathway flow, techniques for studying metabolism, and up-to-date molecular and cellular exercise physiology research. Prereq: BCHM 658 or KIN 724.

NUTR 740 - Nutrition for Children with Special Needs

Credits: 2.00

Nutritional assessment and care of children with special needs resulting in feeding difficulties requiring medical nutrition therapy. Prereq: NUTR 400.

NUTR 750 - Nutritional Biochemistry

Credits: 4.00

Detailed analysis of the digestion, absorption, transport, and intermediary metabolism of nutrients. Nutrient requirements are evaluated in the context of their physiological and biochemical functions. Prereq: ANSC 511-512; BCHM 658; or equivalents. (Also offered as ANSC 750.) Writing intensive.

NUTR 751 - Nutritional Biochemistry of Micronutrients

Credits: 4.00

Investigation of the biochemical and clinical aspects of micronutrient metabolism. All of the essential vitamins and minerals are explored in depth. Some representative phyto-nutrients and quasi-nutrients are also explored. The nutrients are examined for their molecular, cellular, and biomedical functions and intermediary metabolism, as well as the biochemical and clinical consequences of their deficiency or excess. Prereq: Nutritional biochemistry (NUTR 750/850 or equivalent.) Spring semester only.

NUTR 756 - Assessment and Treatment of Adult Obesity

Credits: 3.00

Overview of the risk factors associated with obesity; evidence-based recommendations for assessment and treatment of obesity. Counseling skills important to successful weight management and non-diet approaches are also explored. Prereq: NUTR 400, ZOOL 507/508. Special fee.

NUTR 770 - Nutrition and Gender Based Health Concerns

Credits: 2.00

Offers a comprehensive review of the health issues facing adult men and women today. Students read and evaluate the current literature and document their reactions to group discussion in reaction papers on the topic. Students also present a topic of interest to the class.

NUTR 773 - Clinical Nutrition

Credits: 4.00

Application of principles of normal nutrition and physiology to clinical problems; altered nutrient

requirements in human disease. Prereq: basic nutrition, anatomy and physiology, and biochemistry, or permission. (Fall semester only.)

Co-requisites: NUTR 775

NUTR 775 - Practical Applications in Medical Nutrition Therapy

Credits: 4.00

Supervised practical experience in therapeutic dietetic in one of several cooperating New Hampshire hospitals. Emphasizes nutritional counseling, assessment, and instruction of patients with nutrition-related disorders. Prereq: basic nutrition, anatomy and physiology, and biochemistry. (Fall semester only.)

Co-requisites: NUTR 773

NUTR 780 - Critical Issues in Nutrition

Credits: 4.00

Critical review and analysis of controversial topics in nutrition; emphasis on developing oral and written communication skills and analytical reasoning skills. Prereq: permission. (Spring semester only.) Writing intensive.

NUTR 795 - Investigations

Credits: 1.00 to 4.00

Prereq: permission.

NUTR 795W - Investigations

Credits: 1.00 to 4.00

See description for NUTR 795. Writing intensive.

NUTR 799 - Honors Senior Thesis

Credits: 1.00 to 4.00

A special project conducted under faculty supervision and resulting in a written honors thesis. Students must initiate discussion of the project with an appropriate faculty member. Offered both semesters. Prereq: Junior or Senior major with cum. GPA of 3.20; permission. Writing intensive.

Occupational Therapy

OT 444 - Technology, Assistive Technology and Universal Design for All

Credits: 4.00

Course consists of: a) exploring the impact that technology has on human lives; when technology becomes assistive technology, and when assistive technology becomes universally designed technology for all, b) exploring technology, using hands-on exploration of hundreds of assistive technology solutions, c) analyzing case studies of individuals whose lives have been affected by this technology, and d) developing creative problem-solving skills for everyday life challenges. Special fee.

OT 500 - Behavior and Development of Children

Credits: 4.00

Introduces to the biological, psychosocial, and cultural aspects of human development from birth through adolescence. Emphasizes theories that help explain human behavior; discusses implications of developmental research.

OT 501 - Developmental Tasks of Adulthood

Credits: 4.00

Includes the biological and psychosocial context of development. Developmental tasks as they relate to the accomplishment of prior tasks, physiological change, socioeconomic status, and psychosocial development. Prereq: child development course or permission.

OT 510 - Exploring Occupational Therapy and Occupation

Credits: 4.00

Occupational therapy is introduced as a human service profession through experiential and academic activities, which illustrate the personal and professional skills required to practice in a variety of settings and roles. Basic concepts of human occupation and the therapeutic use of occupation are explored. Comparisons are made to related human service careers. Students are encouraged to do a personal assessment of their interest and potential for further study of occupational therapy. Students are required to complete a community service learning assignment

OT 513 - Stressed Out: The Science and Nature of Human Stress

Credits: 4.00

The human stress response system, research investigating the sequelae of stress on health, protective strategies for stress, managing personal stress effectively, and strategizing stress modulation as an intervention technique. Course format includes two hours of weekly lecture/discussion followed by one hour of experiential laboratory in which students research and/or apply new information. Special fee.

OT 595 - Special Topics

Credits: 4.00

Explores areas related to occupational therapy theory, practice, and/or research. Special fee on topic: College as Transition.

OT 610 - Occupation, Identity, Disability

Credits: 4.00

Students develop skills and knowledge for analyzing daily existence, patterns of activity and the occupational choices pursued by humans. Students explore how the self-identity of individuals with and without disability is influenced by participation in everyday activities, and contextual factor: through reading, reflective writing and collecting personal narratives of individuals with disability, students examine the

relations among engagement in daily occupations and the orchestration of routines and social participation with self identity and well-being. Prereq: OT 510. Writing intensive.

OT 685 - Psychosocial Disorders and Everyday Life

Credits: 4.00

The study of abnormal behavior in the context of its effect on everyday function. Provides background information on adult psychosocial disorders commonly seen by service providers in the mental health system. Students learn to observe and describe behavior in terms of functional impairment, diagnostic criteria, and causative factors. General psychosocial and biological treatments are studied. This course or its equivalent is a prerequisite for entry to the professional masters degree program in occupational therapy. Students are expected to bring to this course a basic knowledge of psychosocial aspects of human development. Prereq: PSYC 401.

OT 695 - Independent Study

Credits: 2.00 to 4.00

In-depth study with faculty supervision. Prereq: junior standing in OT major; approval of major adviser and faculty of area concerned. May be repeated for a maximum of 8 credits.

OT 722 - Introduction to Assistive Technology

Credits: 4.00

Hands on course provides participants with an overview of the application of assistive technology in all life settings for individuals affected by physical, sensory, or cognitive limitations. Methods, materials, and resources for obtaining and providing assistive technology services will also be discussed. Special fee.

OT 724 - Assistive Technology and Physical Disabilities

Credits: 4.00

An advanced course that focuses on the specialized assistive technology needs of persons with physical impairments. Topics include seating and positioning needs, prosthetic devices, manual powered mobility devices, ergonomics and computer access. Special fee.

OT 726 - Assistive Technology and Sensory, Communicative, and Cognitive Disabilities

Credits: 4.00

Explores the application of various technologies for individuals with visual, auditory, cognitive and communication impairments. Included are: blind and low vision aides, assistive listening devices, alternative and augmentative communication devices, memory aides, and prompting aides. Special fee.

OT 741 - Human Occupation

Credits: 4.00

Students have three hours of classroom contact and regular contact with a mentor who is a master of a particular occupational activity. Students learn the activity with support of the mentor and other relevant experiences. Assignments include a presentation and two papers. An honors in the major course. Writing intensive. Special fee.

OT 746 - Transitions: Student to Professional

Credits: 2.00

This course is designed to help occupational therapy students explore role changes involved in leaving the academic world and entering the larger realm of professional and practice settings. Research on professional development indicates this transition is easier when students are prepared in both personal and institutional domains. Through lecture, presentations, small group work, readings, and written assignments students are given opportunities to analyze factors that contribute to successful professional development and ethical practice. Students use the results of their analyses to plan their individual transitions to fieldwork and entry-level practice. Prereq: OT 792; second semester senior.

OT 751 - Mind Body Systems/Neurologically Based Function and Dysfunction

Credits: 4.00

Students study neurologically related disorders commonly seen by occupational therapists. A problem-based learning method is used to examine the perceptual, cognitive, biopsychosocial basis of these disorders. A basic overview of human body-mind systems is provided with an emphasis on pathology, the recognition of symptoms, their causes and the occupational implications of the disorders. Selected theoretical frames of reference for assessment and intervention are discussed in terms of general, holistic methods of practice. The course is a prerequisite for courses in specific occupational therapy assessment and intervention.

OT 752 - Human Movement and Environmental Effects on Everyday Occupations

Credits: 4.00

Integrates the student's prerequisite knowledge of occupation. Develops skills required for interpretation of biomechanical analysis for creating successful occupational performance for individuals with varied musculoskeletal, cardiac and respiratory dysfunction. Integration of the occupational therapy clinical reasoning process and the use of occupations as a therapeutic mechanism for change are emphasized. The analysis of environment as it relates to human movement and participation in desired occupations is explored. Special fee.

OT 760 - Psychosocial Evaluation and Intervention

Credits: 4.00

Examines the evaluation of psychosocial and psycho-emotional areas of occupational performance and the planning and implementation of occupation-based interventions across domains of practice and client populations. Course addresses developing a client's occupational profile, narrative reasoning and therapeutic use of self, behavioral change, illness representation, and adjustment to chronic disorders. A specific focus of the course is evaluation of and intervention for clients' presenting with mental health disorders. Open to OT majors only.

Co-requisites: OT 760L

OT 760L - Psychosocial Evaluation and Intervention Lab

Credits: 1.00

This is the co-requisite lab for OT 760. Lab provides hands-on experiences regarding the evaluation and intervention of psychological and psycho-emotional areas of occupational performance. Course focuses on the evaluation and intervention for clients presenting with mental health disorders and also addresses narrative reasoning, therapeutic use of self, behavioral change, illness representation and adjustment to chronic disorders. Special fee.

Co-requisites: OT 760

OT 762 - Evaluation Principles and Methods

Credits: 4.00

Introduce students to the OT evaluation process. Students apply the clinical reasoning process to OT evaluation across age levels, and types of medical conditions. Students learn about common assessment tools available to occupational therapists, where, when, and how to apply them, and how to evaluate assessment tools. Students develop technical skills in administering selected evaluation tools, in integrating assessment data, and demonstrate emergent clinical decisions about intervention planning. Finally, they gain an appreciation of the importance of measurement in various facets of OT practice. Special fee.

Co-requisites:

OT 763 - Occupational Therapy Intervention

Credits: 4.00

Expands upon the knowledge gained and skills developed in Evaluation Principles and Methods. Students further develop skills in selecting evaluation tools and demonstrating coherent clinical decisions about intervention planning based on data gathered. Selected classes are used for adaptation of knowledge; the course emphasizes the application and demonstration of common intervention strategies used by occupational therapists.

Co-requisites:

OT 764 - Occupational Therapy Intervention Lab

Credits: 2.00

Occupational Therapy Intervention Lab is a co-requisite course to accompany OT 763/863 Occupational Therapy Intervention, a lecture course. The lab course provides opportunity for students to engage in experiential learning and application of principles and techniques learned in the lecture course. The lab sections are small and enable students to receive feedback on their performance during in-class learning activities and written work. 3 hours of contact per week. Special fee.

OT 771 - Enabling Participation in Community Groups

Credits: 4.00

Students will work in an organization, learn about the people served by this organization, conduct an assessment for occupation-based program or wellness program needs within the organization, and develop a proposal for this program to be implemented during the semester. Writing intensive.

OT 791 - Senior Honors Thesis

Credits: 4.00

Completion of a research proposal based on a topic of relevance to the occupational therapy profession. Development of knowledge and skills in receiving and critiquing research and professional literature; research design and methodology; and the development of a research proposal. Required for graduation with honors in the major. Prereq: Completion of OT 741.

OT 792 - Level I Fieldwork

Credits: 1.00

Provides occupational therapy students an opportunity to experience occupational therapy in a clinical setting. Students attend a seminar prior to beginning their placement. The Level I placement is scheduled between the fall and spring semesters of the senior year. During fieldwork, students observe an occupational therapist as well as participate in the planning and implementing of the occupational therapy assessment or intervention process for a client. Cr/F.

OT 795 - Special Topics

Credits: 2.00 to 4.00

Explores areas related to occupational therapy theory, practice, and/or research. May repeat to 12 credits but not in duplicate subject areas. Prereq: permission. Special fee on some sections. Cr/F.

OT 799A - Continuing Fieldwork

Credits:

Students who have previously registered for OT 797, 798, or 799 and have not completed their fieldwork must register for OT 799A. Prereq: permission. Cr/F. IA (continuous grading.)

Ocean Engineering

OE 690 - Introduction to Ocean Engineering

Credits: 4.00

Survey of engineering applications in the ocean environment. Topics vary and include hydrodynamics, waves, tides, underwater sound, instrumentation, diving technology, marine geomechanics, and naval architecture. Taught by a team of faculty members from engineering departments. Prereq: PHYS 408; MATH 527.

OE 710 - Ocean Measurements Lab

Credits: 4.00

Measurements of fundamental ocean processes and parameters. Emphasizes understanding typical offshore measurements, their applications, and the use of acquired data, in terms of the effects on structures and processes in the ocean.

OE 744 - Corrosion

Credits: 4.00

Three-part course. First part reviews and develops basic concepts of electrochemistry, kinetics, and measurement methods. Second part covers details of specific corrosion mechanisms and phenomena including passivity, galvanic corrosion, concentration cell corrosion, pitting and crevice corrosion, and environmentally induced cracking. Third part focuses on the effects of metallurgical structure on corrosion, corrosion in selected environments, corrosion prevention methods, and materials selection and design. Prereq: CHEM 404 or 405; ME 561 or permission. Special fee. Lab. (Also listed as ME 744.)

OE 745 - Environmental Acoustics I: Air and Water

Credits: 4.00

Sound and vibration; simple harmonic oscillators; characteristics and measurements of sound sources and receivers; acoustic wave equation (1D, 2D, 3D); sound reflection, transmission, refraction, and absorption in various media; room acoustics; basic sonar equation. Prereq: PHYS 408; MATH 527; ECE 544 or permission. Lab.

OE 753 - Ocean Hydrodynamics

Credits: 3.00

Fundamental concepts of fluid mechanics as applied to the ocean, continuity, Euler and Navier-Stokes equations, Bernoulli equation, stream function, potential function, moment theorem, turbulence and boundary layers are developed with ocean applications. Prereq: permission.

OE 754 - Ocean Waves and Tides

Credits: 4.00

Introduces waves: small amplitude, linear wave theory, standing and propagating waves, transformation in shallow water, energy and forces on structures, generation by wind and specification of a random sea, long waves with rotation, and internal waves. Introduces tides: description of tides in ocean tidal generation forces, equilibrium tide, and tidal analysis. Lab/project: field and lab measurements with computer analysis. Prereq: PHYS 407-408; MATH 527;/or permission. Lab.

OE 756 - Principles of Naval Architecture and Model Testing

Credits: 4.00

Fundamentals of naval architecture presented, including hydrostatics, basics of resistance and propulsion, sea keeping and scaling. Concepts applied in experiments utilizing the tow/wave tank and associated

instrumentation. Prereq: ME 608 or equivalent; ME 627 or equivalent.

OE 757 - Coastal Engineering and Processes

Credits: 3.00

Introduces small amplitude and finite amplitude wave theories. Wave forecasting by significant wave method and wave spectrum method. Coastal processes and shoreline protection. Wave forces and wave structure interaction. Introduction to mathematical and physical modeling. (Also offered as CIE 757; ME 757.) Prereq: fluid dynamics or permission.

OE 770 - Fundamentals of Ocean Mapping

Credits: 4.00

Introduces the principles and practice of hydrography and ocean mapping. Methods for the measurement and definition of the configuration of the bottoms and adjacent land areas of the oceans, lakes, rivers, estuaries, harbors and other water areas, and tides or water levels and currents that occur in those bodies of water. Prereq: PHYS 407-408. (Also listed as ESCI 770.) Lab.

OE 771 - Geodesy and Positioning for Ocean Mapping

Credits: 4.00

The science and technology of acquiring, managing, and displaying geographically-referenced information; the size and shape of the earth, datums and projections; determination of precise positioning of points on the earth and the sea, including classical terrestrial-based methods and satellite-based methods; shoreline mapping, nautical charting and electronic charts. Prereq: MATH 426, PHYS 408. (Also listed as ESCI 771.)

OE 785 - Environmental Acoustics II: Air and Water

Credits: 4.00

General sonar equation: active, passive, sound generation, source level, directivity, calibration methods; sound propagation, rays and normal modes, acoustic waveguides; transmission loss, reverberation, scattering; ambient noise characteristics and measurements; sound reception and processing. Prereq: ECE 745 or OE 745. (Also listed as ECE 785).

OE 795 - Special Topics

Credits: 2.00 to 4.00

New or specialized courses and/or independent study. May be repeated for credit.

Philosophy

PHIL 401 - General Introduction to Philosophy

Credits: 4.00

Depending upon the instructor, emphasizes basic philosophic problems, recurrent types of philosophies, or selected readings from the history of philosophy.

PHIL 401H - Honors/General Introduction to Philosophy

Credits: 4.00

See description for PHIL 401. Writing intensive.

PHIL 401W - General Introduction to Philosophy

Credits: 4.00

See description for PHIL 401. Writing intensive.

PHIL 412 - Beginning Logic

Credits: 4.00

Principles of reasoning and development of symbolic techniques for evaluating deductive and inductive arguments

PHIL 412H - Honors/Beginning Logic

Credits: 4.00

See description for PHIL 412.

PHIL 417 - Philosophical Reflections on Religion

Credits: 4.00

Introduces philosophy of religion to help students become critically aware of philosophical issues involved in various forms of religious belief and some of the persisting philosophical understandings of those issues.

PHIL 421 - Philosophy and the Arts

Credits: 4.00

Contemporary philosophic concerns and perspectives as reflected in one or more of the arts (literature, theatre, film, music, plastic art). Writing intensive.

PHIL 421H - Honors/Philosophy and the Arts

Credits: 4.00

See description for PHIL 421. Writing intensive.

PHIL 424 - Science, Technology, and Society

Credits: 4.00

Consideration of the scientific endeavor and its social import from a philosophical perspective.

PHIL 430 - Society and Morals

Credits: 4.00

Critical study of principles and arguments advanced in discussion of current moral and social issues. Possible topics: violence, rules of warfare, sexual morality, human rights, punishment, abortion.

PHIL 430H - Honors/Society and Morals

Credits: 4.00

See description for PHIL 430. Writing intensive.

PHIL 430W - Society and Morals**Credits:** 4.00

See description for PHIL 430. Writing intensive.

PHIL 435 - Human Nature and Evolution**Credits:** 4.00

Philosophy of biology and the evolutionary process. Readings of scientists and philosophers' commentary on scientists. Examination of the differences between scientific debate and philosophic debate.

Philosophical study of scientific theory stressing humans' place in the natural world and the ethical implication of humans as natural beings in the evolutionary process.

PHIL 436 - Social and Political Philosophy**Credits:** 4.00

Examines social and political thought that may include texts from ancient through contemporary times, addressing topics such as natural rights, revolution, law, freedom, justice, power. Questions may include: What is a community, and how are individuals related to communities? Can any particular form of government be morally justified, and if so, what kind of government? Can anarchism work? Is there something wrong with a society in which there is private ownership of property? What is oppressive? What is freedom, and are we free? What roles should different forms of power play in a society? Could and should there be a genderless society? Is ethnic diversity valuable? Writing intensive.

PHIL 436H - Honors/Social and Political Philosophy**Credits:** 4.00

See description for PHIL 436. Writing intensive.

PHIL 444 - Remaking Nature/The Ethics and Politics of Genetic Engineering**Credits:** 4.00

Examines the biological, ethical, social, and political issues raised by genetic engineering. Students, acting as an "Advisory Council on Bioethics," formulate policy recommendations about whether or not there should be a Federal ban on research involving cloning of human embryos and genetically modifying plants and animals for food. Writing intensive.

PHIL 444A - Concepts of Self**Credits:** 4.00

An inquiry into the nature of the self and into the conditions under which it may best flourish. Is the self fundamentally biological, spiritual, or social?. Draws on a variety of perspectives in an attempt to answer these questions, including East Asian as well as Western philosophical ideas, feminist theory, Existentialism, and others. Writing intensive.

PHIL 447 - Computer Power and Human Reason**Credits:** 4.00

The historical origins of the science of computation. The implications of the nature of information-processing for understanding the mind-body relation. Examines the possible social, economic, and educational consequences of the computer revolution.

PHIL 447H - Honors/Computer Power and Human Reason**Credits:** 4.00

See description for PHIL 447.

PHIL 450 - Ecology and Values**Credits:** 4.00

Focuses on historical and contemporary philosophies of nature and their effects on human interaction with the environment. Issues include obligations to future generations and to animals, plants, and ecosystems; moral limits on consumption and reproduction; and the existence of objects of intrinsic value. Specific topics may include species loss and biological diversity, population growth, changes in the atmosphere, energy use, and sustainable development.

PHIL 450H - Honors/Ecology and Values

Credits: 4.00

See description for PHIL 450.

PHIL 495 - Tutorial Reading

Credits: 1.00 to 4.00

Basic introductory reading under faculty direction on topics of philosophical importance. Books offered for tutorial reading may be in any area the instructor chooses or on independent study basis up to a maximum of 8 credits. Prereq: permission.

PHIL 496 - Topics

Credits: 4.00

Introductory-level seminar in specific topics or problems considered from a philosophic point of view.

PHIL 500 - Workshop

Credits: 4.00

Introduces methods of studying philosophical texts. Emphasizes reading philosophical texts and arguments for comprehension, and on writing philosophically with accuracy and clarity. Open to PHIL majors only (PHIL minors may enroll if they receive permission). Writing intensive.

PHIL 510 - Philosophy and Feminism

Credits: 4.00

Focuses on the philosophical issues in feminism primarily through the work of historical and contemporary philosophers. Topics include the question of the nature of women, feminism as an ethical and political theory, feminism as an exploration and transformation of the self, feminism as a philosophical methodology, the institutions of marriage and motherhood. Writing intensive.

PHIL 520 - Introduction to Eastern Philosophy

Credits: 4.00

Major Eastern traditions of philosophy. Concentration on Indian, Chinese, and Japanese systems may vary from semester to semester.

PHIL 525 - Existentialism

Credits: 4.00

Readings from existential philosophy and literature. Selections may be drawn from the works of Kierkegaard, Nietzsche, Heidegger, Sartre, Camus, de Beauvoir, Buber, Bultman, Merleau-Ponty, Tillich, Kafka, and others.

PHIL 525H - Honors/Existentialism

Credits: 4.00

See description for PHIL 525.

PHIL 530 - Moral Philosophy

Credits: 4.00

Critical examination of the development of philosophical thinking regarding human values, rights, and duties.

PHIL #540 - Philosophy of Race and Racism

Credits: 4.00

Investigates the concept of race and how different understandings of race underlie racist and anti-racist politics; explores how racism is interlocked with gender, economic, and other forms of oppression. Questions may include: What is racism? Do racial categories (such as black, white, Latino) have any scientific basis, or are they socially constructed? If race is socially constructed, is it still "real" and should it be treated as such? Should public policies be "color-blind" with respect to race? Is whiteness a problematic racial identity and what can white people do about it? How is racism built into the structure of the state? Can popular racial discourse serve to support racist policies or attitudes even when it does not contain explicitly racist claims?

PHIL 550 - Symbolic Logic

Credits: 2.00

Principles and techniques of modern logic. Topics: propositional logic, truth tables, predicate logic, and, time permitting, basic meta-theorems. Prereq: PHIL 412.

PHIL 560 - Philosophy Through Literature

Credits: 4.00

Philosophical implications of representative literary works, read in tandem with philosophical works or articles. The content will vary. The literary works explored may be drawn from ancient times through modern times. For examples, the classic Greek tragedy "Antigone" might be explored for its implications regarding moral, political, and feminist philosophy, or the philosophical implications of an anti-utopian contemporary work like "Brave New World" might be explored, or short stories drawn from science fiction and other speculative fiction might be used to explore the possibility of time travel or of machines with mental lives. Writing intensive.

PHIL 570 - Ancient Philosophy

Credits: 4.00

Development of Western philosophy from its beginnings in Greece to the Roman period, with particular emphasis on the thought of Plato and Aristotle.

PHIL 570H - Honors/Ancient Philosophy

Credits: 4.00

See description for PHIL 570.

PHIL 571 - Medieval Philosophy

Credits: 4.00

Philosophical thought of the Middle Ages from inception in the late Roman period with thinkers such as Plotinus and Augustine through the late medieval speculative mysticism of such figures as Meister Eckhart. Writings of Augustine and Thomas Aquinas.

PHIL 580 - Modern Philosophy from Descartes to Kant

Credits: 4.00

The birth and development of distinctively modern philosophy in the thought of such creative minds as Galileo, Descartes, Hobbes, Leibniz, Spinoza, Locke, Berkeley, Hume, Rousseau, Reid, Kant, and others. Prereq: PHIL 570 or permission.

PHIL 610 - Advanced Topics in History of Philosophy

Credits: 4.00

In-depth examination of a major figure or philosophical movement in the history of philosophy. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be

repeated to improve an earlier grade. Prereq: two courses in history of philosophy or permission. Writing intensive.

PHIL 616 - 19th Century Philosophy

Credits: 4.00

Philosophical movements or philosophers associated with philosophical movements, such as later German idealism, French positivism, utilitarianism, Marxism, existentialism, and vitalism. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be repeated to improve grade without approval from director of philosophy undergraduate program. Prereq: PHIL 574 or 575;/or permission. Writing intensive.

PHIL 618 - 20th Century Anglo-American Philosophy

Credits: 4.00

Major figures in the analytic tradition in England and America. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be repeated to improve grade without approval from director of philosophy undergraduate program. Prereq: two courses in history of philosophy (one of which may be concurrent);/or permission. Writing intensive.

PHIL 620 - 20th Century European Philosophy

Credits: 4.00

Major figures or philosophical movements such as phenomenology, existentialism, critical social theory, and post-modernism. Content will vary. Consult Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be repeated to improve grade without approval from director of philosophy undergraduate program. Prereq: two courses in history of philosophy (one of which may be concurrent);/or permission. Writing intensive.

PHIL 631 - Topics in the Philosophy of Science

Credits: 4.00

Philosophical problems raised by the physical, biological, and social sciences. Content will vary. Topics may include the nature of scientific explanation, the role of mathematics in science, the relations of science to common sense, the relation of theory to observation, the nature of historical changes in scientific world view, claim to objectivity in the natural and social sciences, the role of values in scientific research, the relation of the logic of science to the philosophy and history of science. Prereq: two courses in history of philosophy;/or permission. Writing intensive.

PHIL #635 - Philosophy of Law

Credits: 4.00

Systematic study of salient features of legal systems. Possible topics: nature of law; concept of legal validity; law and morality; individual liberty and the law; legal punishment; legal responsibility and related concepts (for example, legal cause, harm, mens rea, negligence, strict liability, legal insanity). Writing intensive.

PHIL 660 - Law, Medicine, and Morals

Credits: 4.00

Critical examination of the diverse legal and moral issues facing the profession of health care. Variable topics. Possible topics: duty to provide care; nature of informed consent to treatment; problems of allocating limited health-care resources (e.g., withdrawal of life-support systems, quality-of-life decisions, etc.); patient's right to confidentiality. Problems relating to involuntary preventive care (e.g., involuntary sterilization, psycho-surgery, etc.). Writing intensive.

PHIL 701 - Topics in Value Theory

Credits: 4.00

Philosophical inquiry into the nature of value. Topics may include the grounds of right and wrong, various conceptions of morality, the nature of good and evil, theories about the meaning of life, the nature of the beautiful. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be repeated to improve grade without approval from director of philosophy undergraduate program. Prereq: permission. Writing intensive.

PHIL 702 - Topics in Metaphysics and Epistemology

Credits: 4.00

Advanced study in one or more of the following topics: nature of reality, relationship of thought and reality, nature of knowledge and perception, theories of truth. Content will vary. Consult the Time and Room Schedule for topics. Course may be taken twice for credit (a third time with permission of the undergraduate program director) so long as the topic is different. May not be repeated to improve grade without approval from director of philosophy undergraduate program. Prereq: two courses in history of philosophy;/or permission. Writing intensive.

PHIL 720 - Philosophical Psychology

Credits: 4.00

Philosophical perspectives and problems concerning human nature or the human condition; e.g., the nature of "self," human action, the body-mind problem, freedom of the will, the meaning of "person," the nature of behavior, etc. Prereq: PHIL 500 and either PHIL 570 or PHIL 580; or permission. Writing intensive.

PHIL #730 - Theories of Justice

Credits: 4.00

The idea of justice is central to social, political, and legal theory. Considerations of justice are appealed to in assessing the legitimacy of governments, and the fair distributions of goods, and opportunities both with nation-states and globally, and to address specific social concerns such as radical or gender discrimination or access to health care. Examine both historical sources and contemporary debates about the nature of justice. Prereq: PHIL 500, 530, or permission.

PHIL 740 - Advanced Topics in the Philosophy of Law

Credits: 4.00

Content variable. In-depth examination of special topics (constitutional law, crime and punishment, international human rights and gender, sexual orientation, race and class in the law) or a major figure in the philosophy of law (Dworkin, Habermas and Rawls). May be repeated up to maximum of 8 credits. Prereq: PHIL 635 or permission. Writing intensive.

PHIL 780 - Special Topics

Credits: 4.00

Advanced study of special topics: a problem, figure, or movement in the history of philosophy; or selected issues, thinkers, or developments in contemporary philosophy. Prereq: PHIL 500 and one course in the history of philosophy; or permission. May be repeated for credit. Writing intensive.

PHIL 795 - Independent Study

Credits: 1.00 to 8.00

For students who are adequately prepared to do independent, advanced philosophical work; extensive reading and writing. Before registering, students must formulate a project and secure the consent of a department member who will supervise the work. Conferences and/or written work as required by the

supervisor. May be repeated to a total of 8 credits. Writing intensive.

PHIL 798 - Senior Thesis

Credits: 4.00

Two-course sequence open only to senior philosophy majors in the University Honors Program, the philosophy department honors-in-major program, or by special permission from the department. All senior thesis candidates must have a proposal approved in the spring of their junior year and a thesis adviser assigned by the undergraduate program director before registering for 798. Students must orally defend their theses before the department. (See department guidelines for further details.) Prerequisite for 798: PHIL 500. Prerequisite for 799: B- or above in 798. Writing intensive.

PHIL 799 - Senior Thesis

Credits: 4.00

See description for PHIL 798. Writing intensive.

Physics

PHYS 400 - Freshman Seminar

Credits: 1.00

An informal reading and discussion course to introduce students to the general culture of physics, including career possibilities, historical and philosophical aspects of physics, current research at UNH and elsewhere, and physics in the news. Topics vary based on interests of the class. Students in their first year as physics majors (either as freshmen or transfers) are strongly encouraged to take this class. May be repeated once for a total of 2 credits. Cr/F.

PHYS 401 - Introduction to Physics I

Credits: 4.00

Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential. Special fee. Lab.

PHYS 402 - Introduction to Physics II

Credits: 4.00

Broad survey of classical and modern physics. Designed to enable students to appreciate the role of physics in today's society and technology. Emphasizes the fundamental laws of nature on which all science is based, with some examples of interest to biologists. Knowledge of high school algebra, geometry, and trigonometry essential. Prereq: PHYS 401 or the equivalent. Special fee. Lab.

PHYS 405 - Concepts of Physics

Credits: 4.00

Descriptive course investigating a limited number of important physical systems. Emphasis on how the system is to be investigated and the patterns which the results fall. Intuitive concepts used in investigations traced into their application in modern physics. Patterns of thought in physics related to patterns of thought in liberal arts. Recommended for liberal arts juniors and seniors. (Not offered every semester.)

PHYS 406 - Introduction to Modern Astronomy

Credits: 4.00

Descriptive coverage of contemporary astronomical and astrophysical techniques with a review of current knowledge and theories concerning the solar system, galaxies, and the universe. Recommended for liberal arts and beginning science students. Knowledge of high school algebra is assumed. Special fee. Lab.

PHYS 407 - General Physics I

Credits: 4.00

Introductory course emphasizing motion, forces, energy, momentum, rotation, and oscillations. Recommended for the student specializing in science and engineering. Students in the Honors section must be co-enrolled in MATH 425H so that strong connections can be made between math and physics. 407H students work in groups in every class meeting. Prereq: thorough knowledge of algebra, geometry, and trigonometry; May not receive credit for both PHYS 401 and 407. Pre- or Coreq: MATH 425. Special fee. Lab.

PHYS 407H - Honors/General Physics I

Credits: 4.00

See description for PHYS 407.

PHYS 408 - General Physics II

Credits: 4.00

Introductory course emphasizing waves, sound, heat, electricity and magnetism. Recommended for students specializing in science and engineering. Students in the Honors section must be co-enrolled in MATH 426H so that strong connections can be made between math and physics. 408H students work in groups in every class meeting. Prereq: PHYS 407. May not receive credit for both PHYS 402 and 408. Pre- or Coreq: MATH 426. Special fee. Lab.

PHYS 408H - Honors/General Physics II

Credits: 4.00

See description for PHYS 408.**Co-requisites:** MATH 426H

PHYS 409 - Investigating Physics

Credits: 4.00

Elementary physics course where students develop a conceptual understanding of topics such as the solar system, phases of the moon, seasons, electrical circuits, electromagnets, light and color, sound and simple machines. The course is based on hands-on-activities, small groups, and discussions. This course is intended for students with little or no previous experience in physics who do not intend to take any other physics course. Cannot be taken for credit if credit received for PHYS 401, 402, 407 or 408.

Co-requisites:

PHYS #444 - Myths and Misconceptions About Nuclear Science

Credits: 4.00

The discoveries of nuclear physics have spawned the nuclear power plant and bomb, but also many far reaching, though less recognized applications of nuclear science in medicine, research, and our everyday lives. This course examines the underlying physics of nuclear science, the resulting technological applications and dangers, and some of the implications for public policy. In the process, we dispel many of the popular myths and misconceptions that surround nuclear science and radiation in the public's mind and the media. You may be surprised! Topics are wide ranging and inherently interdisciplinary. They include nuclear stability and radioactivity, natural sources of radioactivity, the effects of radiation on living things, particularly people, nuclear medicine, nuclear science in fields such as biology, archeology, geology and engineering, nuclear chain reactions, nuclear reactors and energy, nuclear accidents, radioactive waste, nuclear weapons and proliferation, nuclear energy in stars, and the origin of the elements. Be prepared to actively participate.

PHYS 444A - The Big Bang

Credits: 4.00

A seminar course that introduces students to some of the most exciting aspects of physics and astronomy: the nature of space and time, the Big Bang and the evolution of the universe. Writing intensive.

PHYS 444B - Into the Final Frontier: America's Journey into Space

Credits: 4.00

One of the greatest accomplishments of the twentieth century is the human advance into space. For the first time ever, travel beyond the Earth is more than just the subject of adventurous science fiction tales - it is reality. The purpose of this course is to trace the development of space flight from the late 1800's to the present time and discuss the advantages and disadvantages of maintaining a human space flight program.

PHYS 505 - General Physics III

Credits: 3.00

Electromagnetic waves, geometrical and physical optics, relativity, atomic physics, elementary quantum mechanics, molecular physics, and nuclear physics. Prereq: PHYS 408.

PHYS 506 - General Physics III Laboratory

Credits: 1.00

Structured laboratory experience in optics and modern physics. Coreq: PHYS 505. Special fee. Lab.

Co-requisites: PHYS 505

PHYS 508 - Thermodynamics and Statistical Mechanics

Credits: 4.00

Classical and statistical approach to thermodynamics, kinetic theory. Prereq: PHYS 505. Coreq: MATH 526 or MATH 528.

Co-requisites:

PHYS 605 - Experimental Physics I

Credits: 5.00

Circuit design with passive and active elements including transistors and operational amplifiers; electrical measurements for experimental physics; digital electronics, microprocessors, and interfacing techniques.

Prereq: PHYS 408, 505; MATH 525 or 527. Lab. Special fee.

PHYS 615 - Classical Mechanics and Mathematical Physics I

Credits: 4.00

Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 407. Pre- or Coreq: MATH 527.

PHYS 616 - Classical Mechanics and Mathematical Physics II

Credits: 4.00

Analytical treatment of classical mechanics covering the dynamics of particles and rigid bodies, at an intermediate level. Advanced mathematical analysis (complex numbers, differential equations, Fourier series, multiple integrals) are reviewed or introduced as needed to analyze physical situations. Prereq: PHYS 615.

PHYS 701 - Introduction to Quantum Mechanics I

Credits: 4.00

Non-relativistic Schroedinger equation, the hydrogen atom, applications to atomic and nuclear structure.

Prereq: PHYS 505, 615, 616.

PHYS 702 - Introduction to Quantum Mechanics II

Credits: 4.00

See description for PHYS 701.

PHYS 703 - Electricity and Magnetism I

Credits: 4.00

Foundation of electromagnetic theory; electrostatics, dielectric theory, electromagnetism, magnetic properties of matter, alternating currents, Maxwell's field theory. Prereq: PHYS 408, 615, 616.

PHYS 704 - Electricity and Magnetism II

Credits: 4.00

See description for PHYS 703.

PHYS 705 - Experimental Physics II

Credits: 4.00

Modern physics experiments and special project problems assigned to individual students. Prereq: PHYS

605; senior standing in physics. Lab. Writing intensive.

PHYS 708 - Optics

Credits: 4.00

Geometrical optics, electromagnetic theory of light, interference, diffraction, polarization, related phenomena and nonlinear optics. Prereq: PHYS 505, 615, 616. Lab.

PHYS 710 - Introduction to Modern Astrophysics

Credits: 4.00

Reviews the sun, stars, Milky Way, external galaxies, and expansion of the universe. Recent discoveries of radio galaxies, quasi-stellar objects, cosmic black-body radiation, x rays, and gamma rays precede a discussion of Newtonian and general relativistic cosmological models, steady-state/big-bang theories, and matter-antimatter models. Prereq: PHYS 505, 615, 616.

PHYS 712 - Introduction to Space Plasma Physics

Credits: 4.00

Introduces space plasma physics, including solar physics, heliospheric physics, magnetospheric physics, and ionospheric physics. An overview of the basic phenomena and processes (e.g., particle acceleration and transport, shock formation, magnetic structures and reconnection, wave propagation, wave-particle interactions, instabilities), theoretical techniques (e.g., single-particle orbits, kinetic and fluid descriptions), and experimental techniques. (Alternate years only.)

PHYS 718 - Introduction to Solid State Physics

Credits: 4.00

Theory and experiment underlying the behavior of solids. Transport theory, surface studies, and the interaction of radiation and matter. Operation of semiconducting and superconducting devices and lasers. Prereq: PHYS 505, 615, 616.

Co-requisites: PHYS 701

PHYS 720 - Nuclear Physics

Credits: 4.00

Nuclear phenomenology, reactions, models, radiation, interaction of radiation with matter; accelerators; properties and interactions of elementary particles; symmetries and symmetry breaking; standard model. Prereq: PHYS 702, 704.

PHYS 764 - General Relativity and Cosmology

Credits: 4.00

Review of special relativity, and the motivation for considering gravity in terms of curvature of space time. Introduction to Riemannian geometry, general relativity and Einstein's equations. Application of general relativity in the study of black holes, gravitational waves, cosmology, as well as recent results on inflation and quantum gravity. (Alternate years only.)

PHYS 791 - Special Topics

Credits: 4.00

Any selected topics not covered sufficiently in a general course may be studied. May be repeated to a maximum of 8 credits.

PHYS 795 - Independent Study

Credits: 1.00 to 8.00

Individual project under direction of a faculty adviser. Prereq: department permission.

PHYS 799 - Thesis

Credits: 4.00

Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Required for honors-in-major. Restricted to seniors. Prereq: permission. May be repeated to 8 credits. Writing intensive.

Plant Biology

PBIO 400 - Plants and Civilization

Credits: 4.00

Global experience of human interactions with plants and ways in which plants have contributed to the development and flourishing of human societies. Includes role of plants in providing sustenance, clothing and shelter, quest for spices and the historical consequences of plant explorations and exploitations, the power to heal or kill, plants in mythology and spiritual endeavors, plants that alter consciousness, plant diseases and human history, plants as energy for society, and the Green Revolution global change and feeding the world in the future. Special fee.

PBIO #401 - Plant Biology Orientation

Credits: 1.00

Overview of plant biology research and teaching facilities; introduction to research, extension, and educational functions within the department; career opportunities in plant biology. Required of all plant biology majors. Cr/F.

PBIO 405 - Organic and Sustainable Food Production

Credits: 4.00

Introduces systems involved in organic food production with emphasis on sustainability of our food production. Scientific and biological principles relating to organic food production. Role of organic food production in our local communities. Special fee.

PBIO 412 - Introductory Botany

Credits: 4.00

Plants in their natural environments: their structure, function, growth, reproduction, and evolutionary diversity. Special fee. Lab.

PBIO 421 - Introductory Horticulture

Credits: 4.00

Introduces horticultural practices and principles affecting plant growth and development in garden, landscape, greenhouse, and farm settings. Special fee. Lab.

PBIO 421H - Honors/Introductory Horticulture

Credits: 4.00

See description for PBIO 421. Special fee.

PBIO 501 - Basic Biochemistry

Credits: 3.00

Fundamentals of general and plant biochemistry for students in majors not requiring the biology core, e.g., health sciences, agricultural sciences, environmental biology. (Will not substitute for BCHM 658-659, BCHM 751-752.) Not open to first-year students; not offered every year. Prereq: CHEM 403-404 or equivalent.

PBIO 503 - Introduction to Marine Biology

Credits: 4.00

Emphasizes the organization of marine biological communities. Various marine environments pelagic, benthic, temperate, tropical and their characteristic communities. Major emphasis on the approaches (e.g., analysis of energy flow and predator-prey interactions) used to analyze marine communities as well as the

sampling techniques employed for each approach and the characteristic habitat type. Prereq: BIOL 411-412. Special fee. (Also offered as ZOO 503.)

PBIO 547 - Environmental Horticulture

Credits: 4.00

Effects of environmental factors such as nutrition, light, and temperature on plant growth and development. Hands-on learning of a scientific approach to plant production, with an emphasis on producing high-quality greenhouse plants. Diagnosis of plant problems related to environmental factors. Issues of environmental quality related to intensive horticultural production. Special fee. Writing intensive.

PBIO 565 - Turf Management

Credits: 4.00

Adaptation and management of fine turf grasses for recreational, aesthetic, and functional use. Lab. Special fee.

PBIO 566 - Systematic Botany

Credits: 4.00

Scientific basis of plant taxonomy and the identification and classification of major plant families, native trees, shrubs, and wild flowers. Field trips, plant collection. Prereq: BIOL 412 or PBIO 412. Lab. Special fee.

PBIO 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in setting associated with future professional employment and/or related graduate opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty adviser selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission. Cr/F.

PBIO 600W - Field Experience

Credits: 1.00 to 4.00

See description for PBIO 600. Cr/F. Writing intensive.

PBIO 612 - Plant Genetics and Reproduction

Credits: 4.00

Introduces plant domestication, Mendelian inheritance, plant reproduction, biochemical basis of inheritance, plant breeding, and biotechnology of crop plants. Prereq: CHEM 403; PBIO 412 or equivalent. Will not satisfy biology core requirement for genetics.

PBIO 625 - Introduction to Marine Botany

Credits: 4.00

Life history, classification, and ecology of micro- and macroscopic marine plants, including phytoplankton, seaweed, and salt marsh plants, and the interactions between humans and marine plant communities. Occasional Saturday morning field trips. Prereq: BIOL 412 or PBIO 412 or permission. Special fee. Lab.

PBIO 650 - Crop Production Technologies

Credits: 3.00

Major technologies and systems for intensive production of warm season vegetable crops, including traditional and alternative tillage and fertilizer practices, irrigation systems, storage systems, and use of various plasti-culture techniques (mulches, row covers, high tunnels, and greenhouses) to extend the growing season. Prereq: PBIO 421 or equivalent or permission; PBIO 546 and 547 recommended. (Not offered every year.)

PBIO 651 - Plant Pathology

Credits: 4.00

Nature, symptomatology, etiology, epidemiology, and control of important plant diseases. Prereq: PBIO 412, BIOL 411-412, or equivalent. Lab.

PBIO 652 - Culture of Vegetable Crops

Credits: 3.00

Origin, distribution, adaptation and culture of major temperate and subtropical vegetable crops. Lectures emphasize information on varieties, planting systems, cultivation, pest control, harvesting, and storage for New England growing conditions. Prereq: PBIO 421 or 412 or equivalent or permission; PBIO 546 recommended. (Not offered every year.)

PBIO 679 - Landscape Management

Credits: 3.00

Relates the principles of plant growth and development to current theory and practice in the establishment and maintenance of landscape plants. Plant selection, site assessment, planting techniques, cultural practices and diagnosis of problems are addressed with emphasis on environmental sustainability. Prereq: PBIO 421 or permission. Special fee. (Offered every other year.)

PBIO 689 - Greenhouse Crop Management

Credits: 4.00

Production of annuals, herbaceous perennials, and flowering bulbs. Hands-on learning of production aspects including nutrition and irrigation management, and details of specific floricultural crops. Business management for greenhouse and nursery operations is covered, including use of computer spreadsheet tools. Prereq: PBIO 547. Lab. Special fee. (Offered alternate years.)

PBIO 701 - Plant Physiology

Credits: 3.00

Structure-function relationship of plants, internal and external factors regulating plant growth and development, plant hormones, plant metabolism, water relations, and mineral nutrition. Prereq: PBIO 412 or PBIO 421 or BIOL 411-412; CHEM 403-404; PBIO 501 or equivalent.

PBIO 702 - Plant Physiology Laboratory

Credits: 2.00

Analytical techniques for plant physiology, effects of growth regulators on plant growth and development, cell and tissue culture, enzyme kinetics, and plant water relations. Pre- or Coreq: PBIO 701. Special fee.

PBIO 709 - Plant Stress Physiology

Credits: 3.00

Physiological and biochemical mechanisms of plant responses to abiotic stresses, including drought, salt, high and low temperature, visible and ultra-violet radiation, heavy metals, and air pollutants. Current hypotheses, agricultural and ecological implications are discussed. Prereq: plant physiology; biochemistry; or permission. (Offered alternate years.)

PBIO 713 - Biochemistry of Photosynthesis

Credits: 4.00

Physiology and biochemistry of photosynthesis in higher plants and microorganisms: light reactions, electron transport, membrane structure and function, carbon assimilation pathways, energy conservation, and metabolic regulation. Agronomic and ecological aspects of photosynthesis are examined. Prereq: plant physiology or biochemistry (Not offered every year.)

PBIO 714 - Electron Microscopy

Credits: 2.00

Theory and principles involved in preparing plant and animal tissue for observation with the transmission (TEM) and scanning (SEM) electron microscopes; shadow casting; photographic techniques; stereology; and presentation of micrographs for publication. Prereq: permission.

Co-requisites:**PBIO 715 - Electron Microscopy Lab****Credits:** 3.00

Practical application of theoretical principles and practices used in preparing and observing plant and animal tissues with the transmission and electron microscopes. Student project assigned. Prereq: permission. Special fee.

Co-requisites: PBIO 714**PBIO 717 - Lake Ecology****Credits:** 4.00

Introduces the ecology of freshwater systems with emphasis on lakes. Origins of lakes and the effects of watersheds on lake chemistry and nutrient cycling are explored. Other topics include the impact of human disturbances on productivity and aquatic food webs and methods used for the management and restoration of lakes. Comparisons are made of the structure and functions of lake ecosystems found in temperate, tropical and arctic regions. Prereq: general biology. (Also offered as ZOOL 717.)

PBIO 719 - Field Studies in Lake Ecology**Credits:** 4.00

Ecology of lakes and other freshwater habitats examined through field studies. Emphasizes modern methods for studying lakes; analysis and interpretation of data; and writing of scientific papers. Seminars on research papers and student presentations of class studies. Field trips to a variety of lakes, from the coastal plain to White Mountains; investigate problems, such as eutrophication, acidification, biodiversity and biotoxins. Capstone experiences include interaction with state agencies, lake stakeholders and the submission of written manuscripts for publication. Prereq: introductory biology. (Also offered as ZOOL 719.) Special fee. Writing intensive.

PBIO 720 - Plant Nutrition**Credits:** 4.00

Mineral nutrition of higher plants, behavior of nutrients in the soil and in plants, environmental and genetic factors that influence nutrient absorption and translocation, and visual diagnosis and remediation of plant nutrient deficiencies and toxicities. Prereq: CHEM 403-404; PBIO 701 or permission. Special fee.

PBIO 722 - Marine Phycology**Credits:** 4.00

Identification, classification, ecology, and life histories of the major groups of marine algae, particularly the benthonic marine algae of New England. Periodic field trips. Prereq: BIOL 412 or PBIO 412 or 703. Lab. (Offered alternate years.) Special fee.

PBIO 723 - Seaweeds, Plankton, and Seagrass: The Ecology and Systematics of Marine Plants**Credits:** 4.00

Introduces the biology of marine plants, with an emphasis on the macroalgae common to the Gulf of Maine and found in abundance at the Isles of Shoals. Lecture topics include productivity in the world's oceans, rocky shore ecology, commercial cultivation of algae, and phytoplankton ecology, as well as molecular analysis of the evolution and biogeography of marine plants. Field and laboratory exercises include collection and identification of algae from Appledore's intertidal and subtidal habitats, experimental design and data analysis for field study, and tide-pool community surveys. Individual field projects may involve studies of algae growth, productivity as it relates to morphology, photosynthesis, and desiccation during

low tide. Daily and evening lectures, laboratories and field work. Prereq: field marine science or one year of introductory biology. (Summers only, at Shoal's Marine Lab.)

PBIO #725 - Marine Ecology

Credits: 4.00

Marine environment and its biota, emphasizing intertidal and estuarine habitats. Includes field, laboratory, and independent research project. Prereq: general ecology; permission. Marine invertebrate zoology, oceanography, and statistics are desirable. (Also offered as ZOOL 725.) Special fee. (Offered alternate years.)

PBIO 727 - Algal Physiology

Credits: 3.00

Survey of major topics in the physiology and biochemistry of marine and freshwater algae including: nutrition, metabolic pathways, reproductive physiology, storage and extracellular products, cell inclusions, growth and development. Prereq: plant physiology or introductory biochemistry or permission. (Not offered every year.)

Co-requisites:

PBIO 732 - Lake Management: A Multidisciplinary Approach

Credits: 4.00

Lectures and seminars on interpreting lake water quality, developing a natural history inventory for lakes, the process of creating a lake management plan, and resolution of conflicting uses of lakes. Students develop lake management plans in cooperation with governmental agencies and lake associations. Guest speakers from state agencies and non-governmental organizations. Introduces use of GIS (Geographic Information Systems) methods for the analysis of lakes and watersheds. Presents lake management issues from scientific and social science points of view. Open to students from all disciplines. (Also offered as ZOOL 732.) Special fee. Lab.

PBIO 747 - Aquatic Plants in Restoration, Management and Conservation

Credits: 4.00

A field-intensive class focusing upon freshwater and marine vascular plants with an emphasis on species commonly associated with ecological restoration, the identification and conservation of rare species, and the adaptations and management of invasive species of aquatic habitats in New England. Field trips emphasize the flora of various wetland habitats, including open water and vegetated fresh water wetlands, as well as coastal and estuarine habitats. Lectures and readings examine the current trends in research and management focusing upon specific taxa and pertinent facets of their taxonomy, physiology, and natural history. Prereq: PBIO 566 or permission.

PBIO 751 - Cell Culture

Credits: 5.00

Theory and principles fundamental to the culture of cells in vitro. Introduces techniques of preparation and maintenance of animal, plant, insect, and fish cell cultures. Application of cell culture to contemporary research in biological sciences. Prereq: MICR 503; permission. (Also offered as ANSC 751 and MICR 751.) Special fee. Lab.

PBIO 753 - Cytogenetics

Credits: 4.00

Chromosome structure, function, and evolution. Eukaryotic genome organization. Theory of, and laboratory techniques for, cytogenetic analysis in plants and animals. Prereq: BIOL 604. Special fee. Lab. (Also offered as GEN 753. Not offered every year.)

PBIO 753H - Honors/Cytogenetics

Credits: 4.00

See description for PBIO 753.

PBIO 758 - Plant Anatomy

Credits: 5.00

Anatomy of vascular plants, emphasizing structure and development of basic cell and tissue types, and of the major plant organs. Prereq: BIOL 412 or PBIO 412. Lab. (Not offered every year.)

PBIO 760 - Insect Pest Management

Credits: 4.00

Students learn the principles of integrated pest management, as they apply to insects (and some other arthropods). Additionally, they learn to recognize the major orders of insects, and some insect families that are important as natural enemies of pests. Course incorporates a significant amount of writing, plus learning to search the scientific literature. Prereq: BIOL 411 and BIOL 412 or equivalent. Writing intensive.

PBIO 772 - Evolutionary Genetics of Plants

Credits: 4.00

Mechanisms of genetic change in plant evolution, domestication, breeding, genetic engineering. Topics include Darwinian theory; speciation and hybridization; origins and co-evolution of nuclear and organelle genomes; gene and genome evolution; transposable elements, chromosome rearrangements, polyploidy. Lab: DNA techniques, sequence analysis programs, phylogenetic trees. Special fee. Prereq: BIOL 604 or equivalent; PBIO 412 or BIOL 411/412 or equivalent. (Also offered as GEN 772.) (Not offered every year.) Writing intensive.

PBIO 774 - Plant Biotechnology and Genetic Engineering

Credits: 3.00

Plant transformation and regeneration, gene isolation and identification, structure and regulation of plant genes, current applications of plant genetic engineering, environmental and social implications. Prereq: BIOL 604 or permission. (Also offered as GEN 774.) (Not offered every year.)

Co-requisites:

PBIO 775 - Plant Biotechnology and Genetic Engineering Lab

Credits: 2.00

Techniques for genetic transformation and selection of plants, analysis of foreign gene expression, and plant cell and tissue culture. Coreq: PBIO or GEN 774. (Also offered as GEN 775.) Special fee. (Not offered every year.)

Co-requisites: PBIO 774

PBIO 795 - Investigations

Credits: 1.00 to 6.00

Topics may include systematic botany, plant physiology, plant pathology, plant anatomy, plant ecology, mycology, cell biology, phycology, botanical teaching, morphology, cell physiology, scientific writing, micro-technique, cell and tissue culture, history of botany, genetics, plant utilization, or teaching experience. Individual projects under faculty guidance. Prereq: permission. (4 credit maximum per semester for any single section.) May be repeated.

PBIO 795W - Investigations

Credits: 1.00 to 6.00

See description for PBIO 795. Writing intensive.

PBIO 796 - Special Topics

Credits: 1.00 to 4.00

Occasional offerings in subject matter not covered by existing courses. A) Systematic Botany, B) Physiology, C) Plant Pathology, D) Anatomy, E) Morphology, F) Ecology, G) Mycology, H) Phycology, I) Cell Biology, J) Genetics, K) Evolution, L) Plant Utilization, M) Plant Molecular Biology, N) Developmental Plant Biology, O) Cell and Tissue Culture, P) Physiological Ecology, Q) Plant Disease Control, R) Plant Hormones, S) Crop Management, T) Biotechnology, U) Plant Nutrition, V) Ecological Agriculture W) History and Philosophy. Prereq: permission. May be repeated. No more than 4cr. maximum per semester for any single section.

PBIO 796W - Special Topics

Credits: 1.00 to 4.00

See description for PBIO 796. Writing intensive.

PBIO 797 - Senior Seminar

Credits: 1.00

Professionalism course for plant biology and environmental horticulture majors. Topics focus on the importance of written and oral communications. Projects include resume preparation, oral presentations, and writing activities. Discussion of current topics in horticulture/plant sciences and job search basics. Attendance at selected seminars in related subject areas. Required of all senior majors in environmental horticulture. (Fall semesters only.) Cr/F.

PBIO 799 - Honors Senior Thesis

Credits: 2.00 to 4.00

Students work under the direction of a faculty sponsor to plan and carry out independent research resulting in a written thesis. Two-semester sequence; IA grade (continuous course) given at end of first semester. May be repeated to a total of 6 credits. Writing intensive.

Political Science

POLT 401 - Politics and Society

Credits: 4.00

Introduces the nature of politics and political institutions. Emphasizes political behavior and continuing issues of modern politics, such as power, authority, legitimacy, freedom, and order.

POLT 401H - Honors/Politics and Society

Credits: 4.00

See description for POLT 401.

POLT 402 - Introduction to American Government

Credits: 4.00

Power and competition in American politics focusing on voters and elections; public opinion and the media; interest groups and political institutions the President, Congress, and the Courts. Examines critical political issues from the founding of the nation to the present.

POLT 402H - Honors/Introduction to American Government

Credits: 4.00

See description for POLT 402.

POLT 403 - United States in World Affairs

Credits: 4.00

Introduction to United States foreign policy since the end of World War II examining the foundations of American policy, the origins and conduct of the Cold War and the dilemmas of the post Cold War era. Explores contemporary problems facing United States foreign policy such as international economy and transnational global issues.

POLT 403H - Honors/United States in World Affairs

Credits: 4.00

See description for POLT 403. Writing intensive.

POLT 403W - United States in World Affairs

Credits: 4.00

See description for POLT 403. Writing intensive.

POLT 407 - Law and Society

Credits: 4.00

Introduces the ways in which law operates in modern society: its forms, functions, underlying values, and the consequences of its application in particular regimes. Topics include the psychological bases for legal obligation, the evolution of particular legal doctrines, the philosophical underpinnings of legal responsibility, the relationship of law to social structures, the relationship of law to morality, the nature of legal reasoning, and critiques of law.

POLT 407H - Honors/Law and Society

Credits: 4.00

See description for POLT 407.

POLT 444 - Politics and Policy in a Warming World

Credits: 4.00

Uses the issue of climate change to explore the relationships between scientific and technical research and debate, policymaking at the international and domestic (U.S.) levels and public understanding and interpretation of complex technical issues. The course is interdisciplinary. Writing intensive.

POLT 444A - Democracy: Its Character and Its Characters

Credits: 4.00

An examination of the spirit of a modern democracy and its influence on the thoughts and actions of those who live within it. Includes selections from Tocqueville's *Democracy In America* and an examination of characters in the works of Weems, Twain, and Salinger. Writing intensive.

POLT 500 - American Public Policy

Credits: 4.00

Political and economic factors that mold the processes by which American policy makers deal with such domestic issues as crime and violence, poverty and inequality, inflation and unemployment, urban blight and renewal, and energy and the environment. Writing intensive.

POLT 502 - State and Local Government

Credits: 4.00

Powers, politics, political cultures, and constitutional settings of American state and local governments. State legislatures, governorships, court systems, political parties, electoral systems, and interest groups. Structures and functions of local governments, including towns, cities, counties, and special districts. Writing intensive.

POLT 504 - American Presidency

Credits: 4.00

The President as administrator, policy maker, and political leader. The relationship between the President and the public, the media, and other governmental institutions. Historical and constitutional background of the Presidency, role and powers of the President in domestic and foreign affairs.

POLT 505 - American Congress

Credits: 4.00

Role and powers of Congress as national lawmaker and check on the executive branch: committee structure, concepts of representation, legislative oversight and party cleavage, federal budget control, and foreign policy involvement.

POLT 506 - Parties, Interest Groups, and Voters

Credits: 4.00

Role of political parties as organizers and managers of social conflict. Role of voters in controlling parties and government. Influence of interest groups in the electoral process and in governmental decision making.

POLT 507 - Politics of Crime and Justice

Credits: 4.00

Criminal justice in theory and practice; contemporary role of police, prosecutors, judges, juries, counsel, and interest groups in the administration of criminal justice. Writing intensive.

POLT 508 - Supreme Court and the Constitution

Credits: 4.00

Supreme Court treated as a political institution whose historic mission is to decide all controversies arising under the Constitution between the nation and the states, the President and Congress; the role of the judiciary in defining its own powers, rights, and duties.

POLT 509 - Bureaucracy in America

Credits: 4.00

Growth and development of the bureaucratic state. Roles and powers of administrative officials, decision making in bureaucratic settings, citizen participation, and the influence of interest groups on bureaucratic policy making.

POLT 510 - Mass Media in American Politics

Credits: 4.00

Contemporary review of media in politics; major roles of media today in providing news, setting public agenda, influencing public opinion; government regulations vs. media responsibility; future developments and consequences for American democracy. Writing intensive.

POLT 512 - Public Opinion in American Politics

Credits: 4.00

Relationship of mass and elite opinion within the context of American political culture. Impact of public opinion on American governmental policies, especially with respect to major issues facing the President and Congress. Appraisal of responsiveness to influence and responsibility to lead. Writing intensive.

POLT 513 - Civil Rights and Liberties

Credits: 4.00

Analysis of four major areas of constitutional rights and liberties political freedom, equal protection of the laws, and due process with particular attention to their impact on such problems as political protest, discrimination, school segregation, students rights and the relationship between government and religion. Writing intensive.

POLT 520 - Justice and the Political Community

Credits: 4.00

Origin of the idea of justice; relationship between politics, justice, and morality; selections from Plato, Aristotle, Roman, Islamic, and Christian political philosophers.

POLT 521 - Rights and the Political Community

Credits: 4.00

Human rights and the quality of communities as expressed in Hobbes, Locke, Mandeville, Rousseau, and others.

POLT 522 - Dissent and the Political Community

Credits: 4.00

Current political ideologies and controversies in America and abroad; liberal democracy and its critics since the 19th century.

POLT 523 - American Political Thought

Credits: 4.00

Introduces the student to the key questions about politics and government asked and answered by American thinkers and actors, as well as the ways in which those "answers" have shaped our institutions and political processes. Emphasizes the idea of property. Writing intensive.

POLT 524 - Politics and Literature

Credits: 4.00

Classical and contemporary works of literature to illustrate perennial issues in political philosophy; among authors studied are Aristophanes, Sophocles, Shakespeare, Melville, Tolstoy, and Sartre.

POLT 525 - Multicultural Theory

Credits: 4.00

Issues of concern generated from an attention to and appreciation of our diverse cultural identities. As a theory course in political framework, we approach multiculturalism as a new attempt to respond to the challenges that difference poses in democratic theory.

POLT 544 - Pathways to Democracy**Credits: 4.00**

Parting from analysis of the Third Wave of worldwide democratization in the 1980s and 1990s, focuses on understanding how and why these regime changes came about, the ongoing trials of democratic consolidation faced by many of these nations, and movement toward democracy by some of the world's remaining authoritarian regimes. Writing intensive.

POLT #545 - People and Politics in Asia**Credits: 4.00**

Surveys the contemporary politics of nations and peoples of East Asia within the framework of their modern histories and societies. Emphasizes China and Japan, and introduces the evolving political systems of Taiwan, North and South Korea, Hong Kong/Macao. Companion course to POLT 546, but either may be taken separately. Writing intensive.

POLT 546 - Wealth and Politics in Asia**Credits: 4.00**

Different paths to modernization, industrialization, and development in nations of the Asia-Pacific Rim. In-depth examinations of the challenges faced by Japan, China, Hong Kong/Macao, Taiwan and the Koreans in their search for the correct path to economic growth and prosperity, with special emphasis on each nation's distinct society and history. Companion course to POLT 545, but either may be taken separately. Writing intensive.

POLT 550 - Comparative Government and Society**Credits: 4.00**

Concepts for comparing modern political systems, such as ideologies, institutions, social movements, and various forms of states, from democracies to authoritarian regimes. Illustrates concepts with examples from Western-style democracies, former communist regimes, and the developing world. Writing intensive.

POLT #551 - Global Urban Politics**Credits: 4.00**

Examines the social, economic, demographic, and political processes of cities around the globe. Topics include population growth, theories of urbanization, urban economic development, urban policies toward transportation, environment, employment, housing, land, water supplies, sanitation, solid-waste disposal, and infrastructure. Comparisons are made between cities of the developed and less developed nations of the world. Structures of urban and national social stratification, structures of urban and subnational governments, and political participation examined. Writing intensive.

POLT 552 - Contemporary European Politics**Credits: 4.00**

Politics and governments in Western Europe, with attention to both basic characteristics of political life in different countries and current issues of politics. Writing intensive.

POLT 553 - Politics in the Developing World**Credits: 4.00**

Considers patterns of political and economic development in the context of globalization. Part one addresses why much of the world has not kept pace with the industrialized democracies; part two addresses nation-building and development efforts, with case studies from Central Asia, Latin America, the

Middle East, and Sub-Saharan Africa.

POLT 554 - Latin American Politics

Credits: 4.00

Examines region-wide transitions from state-led to neo-liberal economic strategies in the 1980s and 1990s and from authoritarian to democratic political systems. Considers the results of these ongoing political and economic changes in several case study nations and the broader impacts of increased globalization and economic integration of the Americas. Writing intensive.

POLT 555 - Politics in Russia

Credits: 4.00

Develops an understanding of politics in the Russian Federation. Surveys the political history of Russia from 1900 until the collapse of the Communist Party and the dissolution of the USSR. Focuses on the development of the Federation's institutions, with emphasis on the Presidency and the Parliament, federalism, the role of the people, transformation toward a market economy, and the Federation's status as a democracy.

POLT 555W - Politics in Russia

Credits: 4.00

See description for POLT 555. Writing intensive.

POLT 556 - Politics in China

Credits: 4.00

Dynamics of China's domestic political and economic policy processes—from massive starvation of the Great Leap Forward and the ideological upheavals of the Great Proletarian Cultural Revolution to the "Opening of China to the Outside World." Writing intensive.

POLT 557 - Politics in Italy

Credits: 4.00

Develops an understanding of the politics and political development of Italy, with an emphasis on the political system which emerged after WWII and the transformation of the 1990's.

POLT 558 - Government and Politics of Canada

Credits: 4.00

Cultural background of party competition, role of ideology, structure of government, and contemporary issues in Canadian political system. Special fee. Writing intensive

POLT 559 - Comparative Politics of the Middle East

Credits: 4.00

Examines the dynamics of political and economic change in states and societies of the Middle East. Covers state formation, nationalism and colonialism, authoritarianism and opposition movements, and the origins of the Israeli-Palestinian conflict.

POLT 560 - World Politics

Credits: 4.00

Examines the structures, processes and issues that shape contemporary international relations. Topics include: the rise and fall of the nation-state system and its current prospects, national and international security in the post Cold War era, problems of the international political economy, international conflict resolution, human rights, and global environmental politics. Writing intensive.

POLT 561 - Introduction to International Political Economy

Credits: 4.00

Designed for students with little or no knowledge of economics; the course develops the relationships between political and economic policy and behavior in international affairs. A major focus is on the conflict between the primary values of the international economic system (efficiency and growth) and other societal and political values. Among the topics are: international trade and finance, economic and non-economic globalization, growth and human development, illicit trade, and economic governance.

POLT 562 - Strategy and National Security Policy

Credits: 4.00

Provides an overview of U.S. national security. Examines the nature of security, evolution of strategy, and the history of the United States' approach to its national security. Focuses on the policy and decision-making processes, the use of force in international affairs, and the capabilities of the U.S. military. Concludes with treatment of specific issues, including the current American security environment state and non-state threats, contemporary military strategy, weapons of mass destruction, terrorism, peacekeeping, coercive diplomacy, alliances, and conflict management and resolution. Writing intensive.

POLT #565 - United States/Latin American Relations

Credits: 4.00

Contemporary political, economic, and social relations between the U.S. and Latin America. Topics include the pattern of U.S. response to political change in Latin America, regional cooperation, debt, trade investment, the drug trade, immigration, rising interdependence, and prospects for economic integration.

POLT #566 - Foreign Policies of Asia and the Pacific

Credits: 4.00

Analyzes the foreign policies and interactions of the four great Pacific powers: China, Japan, Russia and the United States from the breakdown of the western imperialist order and the rise of imperial Japan, the Cold War clashes in Korea and the Sino-Soviet border, to the current search for a new Pacific economic and political order. Writing intensive.

POLT 567 - Politics of Global Resources

Credits: 4.00

International politics from the perspective of the exhaustibility of global resources and the expansion of global demand. Concentrates on issues including population, food, energy, the environment, security, and human rights. Global interdependence and the appearance of new institutional frameworks of global public policy making. Writing intensive.

POLT 568 - Introduction to Intelligence

Credits: 4.00

The purpose and practice of intelligence in the national security process. Concentration on the role of intelligence in the United States involving the C.I.A., military intelligence agencies, and the practice of intelligence in other countries. Writing intensive.

POLT 569 - Chinese Foreign Policy

Credits: 4.00

Analysis of China's struggle for political and economic power in Asia and the world. Examines the legacy of China's historical encounters with the outside world, interactions with the international system since 1949, domestic determinants of foreign political and economic policies, and theories of decision making. Writing intensive

POLT 580 - Selected Topics Am Politics

Credits: 4.00

Special topics such as politics and public affairs in New Hampshire, women in politics, and civil liberties. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr.

POLT 584 - Selected Topics in Political Thought

Credits: 4.00

Special Issues in political theory, such as liberalism and conservatism, radical political thought, the American character, and others. Not offered every semester. See departmental listings for semester offerings. Writing intensive. 4 cr.

POLT 588 - Selected Topics Comp Politics

Credits: 4.00

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POLT 592 - Selected Topics Intl Politics

Credits: 4.00

Examines specialized issues in international politics. Topics may include ethnic conflict, non-proliferations and global security, economic and political globalization, etc. Not offered every semester. See department listings for semester offerings. Writing Intensive. 4 crs.

POLT 602A - Internship

Credits: 4.00

Field experience in a governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least a 3.2 G.P.A. Permission of the undergraduate curriculum committee of the department is required prior to the internship.

POLT 602B - Washington Center Internship

Credits: 4.00

A four-credit independent study designed to work in conjunction with the University's Washington Center Internship program. Requirements: major in Political Science. Junior or senior research component to be discussed with faculty sponsor. For details on the Washington Center Internship, please contact Paula DiNardo, Coordinator National Student Exchange and Washington Center Internships, 114 Hood House, 603-862-3485 (V/TTY 862-2607), email: paula.dinardo@unh.edu. Prereq: POLT 402.

POLT 602C - Concord Internship Program

Credits: 12.00

Provides students with field experience in state government in Concord (State Senate, House of Representatives, Office of the Governor, etc.). Students will spend three days weekly in Concord and attend a weekly practicum in Durham. Open to junior and seniors with a 3.2 or better G.P.A. Applications accepted in the fall semester and can be found on department's website. Permission required. Students may sign up for 602A or any four (4) credit course along with 602C for a total of 16 credits. Cr/F.

POLT 602D - Internship

Credits: 2.00 to 12.00

Field experience in governmental or nongovernmental organization at the local, state, national, or international level. Arrangements must be made through the political science department. Open to juniors and seniors with at least 3.2 G.P.A. Permission from the undergraduate curriculum committee of the department is required. From 2 to 12 credits maybe taken. Cr/F.

POLT 695 - Independent Study

Credits: 2.00 to 4.00

Designed to meet special interests of students and instructors in exploring issues in political science. Upon satisfying eligibility requirements set forth by departmental guidelines (in departmental office and on the Web), students must have the approval of a faculty sponsor. Students submit the form and all supporting

evidence by mid-semester prior to the planned semester of independent study for departmental approval. Does not meet the major's four field-course requirement; maximum of eight (8) credits can be counted toward the non-field major requirements. Prereq: at least one upper-level course in field of independent study.

POLT 696 - Independent Study

Credits: 2.00 to 4.00

See description for POLT 695.

POLT 701 - Courts and Public Policy

Credits: 4.00

Impact of judicial decisions on public policy and influences on judicial decision making at the federal, state, and local levels. Writing intensive.

POLT #703 - Urban and Metropolitan Politics

Credits: 4.00

An eclectic approach to the study of urban and metropolitan politics. Topics include urban politics, forms of local government, migrations, urban development, intergovernmental relations, community power structure, urban policy making, urban service delivery, crime and law enforcement, urban bureaucracy, urban decay, and revitalization. Writing intensive.

POLT #705 - American Public Policy

Credits: 4.00

Examination of public policy formation, agenda-setting, decision-making, implementation. Focuses on theories, models, concepts, actors, and case study examples.

POLT 706 - State and Local Government

Credits: 4.00

Advanced study of powers, politics, political cultures, and constitutional settings of American state and local government.

POLT 708 - Administrative Law

Credits: 4.00

Examines the legal rules governing regulatory agencies, in the U.S. Topics include regulatory adjudication and rulemaking, legislative and executive control over administrative agencies, judicial review and public participation. Examines federal and state levels of government.

POLT 711 - Public Opinion and Survey Research

Credits: 4.00

Examines the role of public opinion in democracy. Research, design, implementation and analysis of a public opinion survey.

POLT 712 - Leadership Theory and Practice

Credits: 4.00

Explores the major theoretical approaches to leadership, including students' and others' leadership skills, styles, roles, and practices. Students will refine their own conceptual and practical approaches to leadership in a variety of settings.

POLT 715 - Art of Negotiation

Credits: 4.00

Identification, analysis, evaluation and application of effective communication and negotiation skills. Course includes case studies, and simulation/role-playing exercises

POLT 721 - Feminist Political Theory

Credits: 4.00

Explores various strands of feminist political theory; taking a specifically political view of the challenges of feminist activism and philosophy. Addresses issues of the public space, power, social transformation, and democracy.

POLT 725 - Politics and Literature

Credits: 4.00

Seminar: Advanced work in exploring classical and contemporary works of literature to illustrate perennial issues in political philosophy.

POLT #740 - States and Societies in the Middle East

Credits: 4.00

Exploration of changing relationships between states and societies in the Middle East and North Africa from WWI to the present. Analyzes the creation of states and markets, the origins of authoritarian and democratic rule, the politics of environment and development, and the evolution of Islamist movements. Country and case studies vary. Previous coursework in comparative politics (POLT 540-559) or history strongly recommended.

POLT #743 - Comparative Political Economy

Credits: 4.00

Explores the origins, development, and functions of the modern state in the West, its links with markets and capitalism, and its role in contemporary political economy. Examples from various advanced industrial societies. Writing intensive.

POLT #750 - Politics of Poverty

Credits: 4.00

Examines economic development to understand causes of international inequality in the distribution of wealth.

POLT 751 - Comparative Environmental Politics and Policy

Credits: 4.00

Environmental politics and policy across national boundaries and at different levels of governance. Comparison of the U.S. and European Union environmental policies to build a foundation for comparisons across national boundaries and sub-national authorities. Students improve their understanding of how and why comparative methods are used to gain insight into politics and policymaking. Central concepts and debates addressed include the roles of expertise, sustainability, precautionary principle, the use of market mechanisms in policy, environmental justice, policy devolution and flexibility, environmental performance assessment, NGO roles, activism, and social movements. A range of theoretical approaches and historical and contemporary events and case studies, evaluating the claims and explanatory power of various concepts and theories. Includes ethical issues emerging from the theory and practice of environmental politics. Writing intensive.

POLT 760 - Theories of International Relations

Credits: 4.00

Theoretical approaches of international politics, international organization and international political economy with particular emphasis on systems theories, domestic determinants of foreign policy and theories of decision making. Writing intensive.

POLT 762 - International Political Economy

Credits: 4.00

The evolution of international economic regimes (monetary, trade, development). Particular emphasis on

theoretical approaches to explain current economic problems: systematic theories (interdependence, hegemonic stability); domestic determinants (bureaucratic, interest group); and decision-making theories (rational choice). Writing intensive.

POLT 778 - International Organization

Credits: 4.00

Various forms of cooperation among nations on security, economic, environmental and social issues through international organizations such as the United Nations, NATO, the World Trade Organization, and other global and regional bodies. Examines the role and influence of non-governmental international organizations. Writing intensive.

POLT 780 - International Environmental Politics, Policy and Law

Credits: 4.00

Explores international/global environmental politics and policymaking, multilateral negotiations, the role of science and technology in policymaking, state capacity, the making of international law, implementation, and compliance. Other issues include climate change, marine pollution, long-range air pollution, United States leadership in the global political arena, North-South divisions in global politics, environmental justice, sustainable development, and the role of the United Nations and other international organizations. Writing intensive.

POLT 795 - Advanced Study

Credits: 4.00

Senior POLT majors, with a cumulative average of 3.20 or greater, may undertake advanced study (political science), in an area of their choice, in consultation with member(s) of the faculty. Normally, the result of the project is a significant written product of a quality comparable to that done at the 700 course level. Student must initiate the project discussion and obtain approval of the undergraduate curriculum committee of the department before undertaking the project. Writing intensive.

POLT 796 - Advanced Study

Credits: 4.00

See description for POLT 795. Writing intensive.

POLT 797B - Seminar in American Politics

Credits: 4.00

Advanced analysis and individual research. Prereq: senior standing. Writing intensive.

POLT 797C - Seminar in Comparative Politics

Credits: 4.00

Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include: constitutional structures, political parties and interest groups, legislatures, bureaucracy and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, political leadership. Prereq: senior standing. Writing intensive.

POLT 797E - Seminar in International Politics

Credits: 4.00

Advanced analysis focusing on problems of theory and contemporary issues in international politics. Areas of interest may include: democratic norms in international relations, NATO expansion and European security, the peace process in the Middle East, etc. See department listings for semester offerings. Prereq: senior standing. Writing intensive.

POLT 797F - Seminar in Public Administration

Credits: 4.00

Advanced analysis and individual research, including opportunities for direct observation of governmental administration. Prereq: senior standing. Writing intensive.

POLT 797I - Seminar in Political Thought

Credits: 4.00

Advanced treatment and individual research. Prereq: senior or graduate standing. Writing intensive.

POLT 798B - Seminar in American Politics

Credits: 4.00

Advanced analysis and individual research. Prereq: senior standing. Writing intensive.

POLT 798C - Seminar in Comparative Politics

Credits: 4.00

Advanced analysis focusing on government and politics in foreign nations or regions. Areas of interest may include constitutional structures, political parties and interest groups, legislatures, bureaucracy and public policy. Topics address such concerns as religion and politics, patterns of economic development, ethnic strife, political leadership. Prereq: senior standing. Writing intensive.

POLT 798E - Seminar in International Politics

Credits: 4.00

Advanced analysis focusing on problems of theory and contemporary issues in international politics. Areas of interest may include democratic norms in international relations; NATO and European security; the peace process in the Middle East; etc. See department listings for semester offerings. Prereq: senior standing. Writing intensive.

POLT 798F - Seminar in Public Administration

Credits: 4.00

Advanced analysis and individual research, including opportunities for direct observation of governmental administration. Prereq: senior standing. Writing intensive.

POLT 798I - Seminar in Political Thought

Credits: 4.00

Advanced treatment and individual research. Prereq: senior or graduate standing. Writing intensive.

POLT 799 - Honors Thesis

Credits: 4.00

Senior POLT honors-in-major students (see department for honors-in-major requirements), with a cumulative average of 3.20 or greater, may undertake a special honors project in an area of their choice. The results of this special project is a significant written product constituting an honors thesis, under the supervision of a faculty sponsor. Students must initiate the project discussion and obtain approval of the undergraduate curriculum committee before undertaking the project. The honors thesis constitutes the tenth course in the major. Writing intensive.

Politics and Society

PS 501 - Social and Political-Economic Theory

Credits: 4.00

Classics of sociological and political economic theory, as well as contemporary thinking in conservative, classical liberal, modern liberal, and radical political economy. Emphasis on the historical context in which these ideas emerge, and the links among them. Readings and discussions include such thinkers as Comte, Spencer, Weber, Durkheim, Locke, Marx, Smith, Riccardo, J.S. Mill, Shumpeter, Keynes, Hayek.

PS 502 - Political Psychology

Credits: 4.00

Political opinion, identity, and belief-formation and reinforcement. The roles of cognition and emotion in how political identities, opinions and beliefs form, change and resist change. The implications of idea-framing in the acceptance and rejection of political concepts and ideologies. The role of social contexts and the media in creating conceptual boundaries in contemporary politics. Writing intensive.

PS 503 - Political Theory and Historical and Social Context

Credits: 4.00

Course analyzes and evaluates the roles of political philosophy and historical circumstances in politics through the readings of selected works by political philosophers and political leaders whose writings combine political philosophy with historical analysis. Special attention given to the nature of argument, choice, and leadership in political behavior. Authors studied include Machiavelli, Madison, Marx, and Lincoln. Writing intensive.

PS 504 - Empire, Democracy and War

Credits: 4.00

The United States, the worlds oldest and most prominent constitutional democracy, is frequently characterized as an American empire, and empire maintained not only by its political ideals and its economic strength, but also by war. Through the reading of selected ancient and modern works by major political philosophers, historians, and political leaders, this course examines empire, democracy, and war as recurrent political concerns and as the actual experience of different regimes throughout history, including the United States. Works by, among others, Aristotle, Thucydides, Machiavelli, Hobbes, Kant, Clausewitz, and Lincoln are supplemented by selected historical studies and by analyses of American policy since World War II.

PS 505 - Political Violence and Terrorism

Credits: 4.00

This course provides an interdisciplinary approach to the study of political violence and terrorism. It covers the psychological and sociological roots of terrorism, the organizational patterns of cells, groups and networks, and the role of ideology and identity in shaping goals, targets, and tactics. No credit for students who have previously taken PS 651 Special Topics: Political Violence and Terrorism.

PS 651 - Selected Topics Politics and Society

Credits: 4.00

Interdisciplinary treatment of selected topics in politics and society. Topics may include democracy, empire and war, gender roles in electoral process, the sociology and psychology of terrorism, the political economy of hunger and poverty, the social origins of dictatorship and democracy, and others. May repeated for a maximum of 8 credits. Topic: Empire, Democracy, and War is Writing intensive.

PS 651W - Selected Topics Politics and Society**Credits:** 4.00

See description for PS 651. Writing intensive.

PS 695 - Politics and Society Independent Study**Credits:** 1.00 to 4.00

Independent study on specific topics in Politics and Society. Project must be approved by the project supervisor Politics and Society Program.

PS 701 - Senior Project and Interdisciplinary Seminar in Politics and Society**Credits:** 4.00

Students undertake internships or other approved field projects with organizations such as political campaigns, media organizations, government offices, business or community groups. The seminar component enables students to share and analyze these experiences, employing readings, discussions, collective behavior games, and speakers. Permission required.

PS 702 - International Relations: Interdisciplinary Approach**Credits:** 4.00

This course explores International Relations Theory as developed by political scientists, subjected to critical insights from other disciplines, including psychology, anthropology, political economy and history. Course first surveys the historical development of International Relations Theory, beginning with Thucydides and Macchiavelli, and proceeding through 20th and 21st century realist, liberal, Marxist and constructivist theories. These theories are then examined critically in the light of insights from psychology, anthropology and political economy. Pre or Coreq: PS 501 or PS 401 or permission of instructor. Special fee.

Portuguese

PORT 401 - Elementary Portuguese I

Credits: 4.00

Conducted in Portuguese. For students without previous knowledge of Portuguese. Aural-oral practice; fundamental speech patterns; reading and writing to achieve a firm basis for an active command of the language. Labs. No credit toward a major. (No credit for students who have had two or more years of Portuguese in secondary school; however, any such students whose studies of Portuguese have been interrupted for a significant period of time should consult the chairperson about possibly receiving credit.) Special fee.

PORT 402 - Elementary Portuguese II

Credits: 4.00

Conducted in Portuguese. Aural-oral practice; fundamental speech patterns; reading and writing to achieve a firm basis for an active command of the language. Labs. No credit toward a major. (No credit for students who have had two or more years of Portuguese in secondary school; however, any such students whose studies of Portuguese have been interrupted for a significant period of time should consult the chairperson about possibly receiving credit.) Special fee. Prereq: PORT 401. (PORT 401 and 402 together satisfies the foreign language requirement.)

PORT 500 - Selected Topics in World Literature

Credits: 4.00

Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, RUSS 500, SPAN 500.) May be repeated for credit. Cr/F. Writing intensive.

PORT 595 - Portuguese Practicum

Credits: 2.00

Practical use of Portuguese language or cultural skills outside the classroom through special projects. Prereq: PORT 401-402 and permission. May be repeated up to 4 credits

Psychology

PSYC 401 - Introduction to Psychology

Credits: 4.00

Psychology as a behavioral science; its theoretical and applied aspects. Includes research methods, behavioral neuroscience, sensation and perception, cognition, learning, development, personality, psychopathology, and social psychology. To experience actively the nature of psychological research students have an opportunity to participate in a variety of studies as part of a laboratory experience.

PSYC 401H - Honors/Introduction to Psychology

Credits: 4.00

See description for PSYC 401.

PSYC 402 - Statistics in Psychology

Credits: 4.00

Design, statistical analysis, and decision making in psychological research. Probability, hypothesis-testing, and confidence intervals. Conceptualization, computation, interpretation, and typical applications for exploratory data analysis (including measures of central tendency, variability), t-tests, correlations, bivariate regression, one-way analysis of variance, and chi square. Introduction to computer methods of computation. No credit for students who have completed ADM 430; BIOL 528; ADMN 420; EREC 525; HHS 540; MATH 439; MATH 539; MATH 644; SOC 502. Special fee.

PSYC 402H - Honors/Statistics in Psychology

Credits: 4.00

See description for PSYC 402.

PSYC 444A - Think Globally, Act Locally: The Individual in Community Context

Credits: 4.00

Introduces students to the field of community psychology through both classroom work and service learning. Broadly, the course aims to help students consider questions such as: What is community? How is individual development influenced by larger community variables? What makes a strong community and what is our role in promoting changes to help our communities become more effective? Students will explore these questions through consideration of current community problems (for example, interpersonal violence, poverty) and through 20 hours of service learning during the semester. Writing intensive.

PSYC 502 - Research Methods in Psychology

Credits: 4.00

Research design, including experimental and correlation design; internal versus external validity; measurement; writing a research report; graphic and statistical methods for summarizing data; sampling; and special problems such as experimenter effects, reactivity of measurement, and others. The use of hypothesis testing and data analysis in research. Prereq: PSYC 401 and 402. Special fee. Writing intensive.

PSYC 511 - Sensation and Perception

Credits: 4.00

The study of how humans (and some other animals) sense and perceive their environment. Topics include seeing (vision), hearing (audition), tasting (gustation), smelling (olfaction), feeling (somatosensation), and the variety of state-of-the-art methods used by psychologists to study these senses. Illusions and other sensory and perceptual phenomena are treated. Prereq: PSYC 401.

PSYC 512 - Psychology of Primates

Credits: 4.00

A comparative analysis of primate cognitive, linguistic, and social processes. The origins of human behavior are explored from the perspectives of history, evolution, and contemporary work in neuropsychology, linguistic, sociobiology, and related fields. Prereq: PSYC 401.

PSYC 513 - Cognitive Psychology

Credits: 4.00

The study of human cognition, its basic concepts, methods, and major findings. Human knowledge acquisition and use. Attention, perception, memory, imagery, language, reading, problem solving, and decision making. Prereq: PSYC 401.

PSYC 521 - Behavior Analysis

Credits: 4.00

Principles derived from the experimental study of human and animal learning and their theoretical integration. Respondent and operant conditioning. Reinforcement and punishment, stimulus control, choice and preference, conditioned reinforcement. Prereq: PSYC 401.

PSYC 531 - Psychobiology

Credits: 4.00

Introduces the behavioral neurosciences. Surveys research conducted by psychologists to learn about the biological basis of behavior: development, sensation, perception, movement, sleep, feeding, drinking, hormones, reproduction, stress, emotions, emotional disorders, learning, and memory. Prereq: PSYC 401.

PSYC 552 - Social Psychology

Credits: 4.00

Behavior of individuals as affected by other individuals, groups, and society. Topics include attitude change and social influence, conformity, social interaction, interpersonal attraction, impression formation, research. Prereq: PSYC 401.

PSYC 553 - Personality

Credits: 4.00

Major theories, methods of assessment, and research. Prereq: PSYC 401.

PSYC 561 - Abnormal Behavior

Credits: 4.00

Causes, diagnosis, and treatment of abnormal behavior. Implications of varying theoretical viewpoints. Prereq: PSYC 401.

PSYC 571 - Pioneers of Psychology

Credits: 4.00

An introduction to the development and evolution of psychology as an academic discipline and applied science. The lives and works of innovators in psychology are placed in socio-political context.

PSYC 571H - Honors/Pioneers of Psychology

Credits: 4.00

See description for PSYC 571.

PSYC 581 - Child Development

Credits: 4.00

The developing child in the context of his/her society. Current problems in, and influences on, development of the child. Personality and cognitive development; exceptional children. Prereq: PSYC 401.

PSYC 582 - Adult Development and Aging

Credits: 4.00

A life-span developmental framework for the study of growth, decline, and stability on adult development. Developmental methods in adult development research; biological basis for aging; patterns of change and stability in diverse domains of psychological functioning, e.g., perception, cognition, intellectual performance, and personality organization. Prereq: PSYC 401. (Offered only in Manchester.)

PSYC 591 - Special Topics

Credits: 4.00

New or specialized courses are presented under this listing. Staff present material not normally covered in regular course offerings. May repeat but not duplicate content. Prereq: PSYC 401.

PSYC 595 - Applications of Psychology

Credits: 1.00 to 4.00

Arranged by the student or offered by psychology faculty for supervised field, academic, or research experience related to psychology. A) Field experience: supervised internship at a business or human services setting, B) Academic experience: specialized classroom experience or supervised teaching assistance, C) Research experience: supervised research experience or laboratory work. Psychology instructors sponsor academic credit for appropriate experience combined with a relevant academic component. Requires a signed learning agreement prior to registration. Prereq: permission. May be taken for 1-4 credits in a semester and repeated to a maximum of 8 credits total. Cr/F.

PSYC 702 - Advanced Statistics and Research Methodology

Credits: 4.00

A review of basic statistics from Psychology 402 and 502 . Covers partial correlation, factorial ANOVA, and other analyses that include multiple predictor variables. Appropriate for students who plan to apply to research-oriented graduate programs, those who use statistics in honors thesis research, and those who plan to work in areas such as marketing or survey research. Topics covered are appropriate for use in psychology, sociology, education, medicine, and other research areas. Prereq: PSYC 402; 502; or permission. (Not offered every year.) Writing intensive.

PSYC 705 - Tests and Measurement

Credits: 4.00

Testing intelligence, creativity, achievement, interests, and personality. Test construction; evaluation; relation to psychological theory, research, and practice. Prereq: PSYC 402; 502;/or permission.

PSYC 705H - Honors/Tests and Measurements

Credits: 4.00

See description for PSYC 705.

PSYC 710 - Visual Perception

Credits: 4.00

The study of how humans (and some other animals) see. Topics include color vision, depth perception, form and pattern vision, visual learning and development, eye movements, diseases of the visual system, illusions, and other visual phenomena. Prereq: PSYC 402, 502, 511, or 531; or permission. Special fee. Writing intensive.

PSYC 712 - Psychology of Language

Credits: 4.00

Theories of language structure, functions of human language, meaning, relationship of language to other mental processes, language acquisition, indices of language development, speech perception, reading.

Prereq: PSYC 402; 502; 512; or 513; or permission. Special fee. Writing intensive.

PSYC 713 - Psychology of Consciousness

Credits: 4.00

Explores questions of consciousness What is it? How does it develop? Are infants and animals conscious? Why did consciousness evolve? Includes a review of historical background, including the ideas of Jaynes, Piaget, James, Freud, and others. Contemporary topics may include the role of language and other representational systems, blindsight, subliminal perception, priming and other implicit cognitive phenomena, hypnosis, confabulation and attribution, dreaming, multiple personality and conceptions of self and free will, from simultaneous perspectives of phenomenology, behavior, and neuroscience. Specific topics governed by class interests. Prereq: PSYC 402; 512; or 513; or permission. Writing intensive.

PSYC 720 - Animal Cognition

Credits: 4.00

Do animals use language or have a culture? Can birds count? Do animals use tools and understand how they function? How do ants navigate their environment to find food and then return to their nest? How animals perceive, attend to, process, store, and represent information from their environment. Research on animal learning and behavior as a framework for investigating cognitive processes in animal learning. Quantitative versus qualitative nature of differences between people and non-human animals. Multidisciplinary approach including the fields of anthropology, physiology, philosophy and biology. Prereq: PSYC 401; 402; 513 or 521; or permission. Writing intensive.

PSYC 722 - Behaviorism, Culture, and Contemporary Society

Credits: 4.00

Introduces behaviorism as a philosophy of science. Concentration on modern behaviorism as exemplified in the works of B.F. Skinner. Implications of behaviorism for the development and evolution of cultures. Consideration of societal issues (for example pollution, overpopulation, conflict, drug abuse) from a behavioral framework. Prereq: PSYC 402; 502; 521;/or permission. No credit for students who have completed PSYC 522. Writing intensive.

PSYC 731 - Brain and Behavior

Credits: 4.00

Neuropsychology, the study of brain/behavior relationships including clinical topics related to the analysis of neurological diseases in humans and more basic experimental topics related to integrative functions of the brain. The main focus is on cerebral cortex and functions related to perception, movement, attention, memory, and language. Prereq: PSYC 402; 502; 531;/or permission. Special fee. Writing intensive.

PSYC 733 - Drugs and Behavior

Credits: 4.00

Introduces the principles of psychopharmacology and the effects of psychoactive substances on behavior. Focuses on the therapeutic and recreational use of drugs and the mechanisms of drug action, that is how the drugs affect the brain. Neuropsychiatric function and dysfunction are discussed as they relate to the use or abuse of particular drugs. Prereq: PSYC 402; 502; 531;/or permission. Writing intensive.

PSYC 735 - Neurobiology of Mood Disorders

Credits: 4.00

Neurobiological and neurochemical substrates underlying various psychopathologies, using both animal models and human data. Study of disorders from the field of biological psychiatry including aggression, anxiety, panic disorder, obsessive-compulsive disorder, unipolar depression, bipolar affective disorder, schizophrenia, and post-traumatic stress disorder. The effectiveness of current behavioral and pharmacological therapy. Prereq: PSYC 402; 502; 531; or permission. Writing intensive.

PSYC 737 - Behavioral Medicine

Credits: 4.00

Behavioral, physiological, and neurochemical alterations, associated with health-promoting behaviors (low-fat diet, exercise) as well as health-impairing behaviors (eating disorders, smoking, excessive alcohol consumption). Topics include stress, coping, type-A behavior, hypertension, and the interface of brain, behavior, and immunity (psychoimmunology, cancer, AIDS). Treatment/therapy are discussed from behavioral and pharmacological perspectives. Prereq: PSYC 402; 502; 531;/or permission. Writing intensive

PSYC 741 - Advanced Topics

Credits: 4.00

Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics under this listing may be used to fulfill a major requirement in category CI. A) Psychology as a Natural Science, B) Cognition, C) Behavior Analysis, D) Biological/Sensory. Prereq: PSYC 402; 502; plus other prerequisites when offered; or permission. Writing intensive.

PSYC 755 - Psychology and Law

Credits: 4.00

Applications of psychology to the study of the law, including theories of legal and moral judgment, participants in the legal system (judges, police, victims, witnesses), the trial process, and plea bargaining. Special focus on the death penalty, the insanity plea, and child witnesses. Prereq: PSYC 402; 502;/or permission. Writing intensive.

PSYC 756 - Psychology of Crime and Justice

Credits: 4.00

Examines the psychological aspects of crime and justice, including the following origins and causes of crime: developmental, biological, biopsychological, learning, and mental disorder. Focuses on issues related to homicide, profiling, and serial killers. Examines aggression and violence as well as causes and consequences of criminal homicides. Discussion of the future of crime. Prereq: PSYC 402; 502; or permission. Writing intensive.

PSYC 758 - Health Psychology

Credits: 4.00

Survey of current topics in health psychology, including social stress and the etiology of disease, Type A and other personality factors related to health, modification of risk factors, the practitioner-patient relationship, chronic pain, and the emotional impact of life-threatening illness. Prereq: PSYC 402; 502; or permission. Writing intensive.

PSYC 762 - Counseling

Credits: 4.00

Theories of counseling, ethical considerations, professional and paraprofessional activities in a variety of work settings. Prereq: PSYC 402; 502; 553; or 561; or permission. Writing intensive.

PSYC 763 - Community Psychology

Credits: 4.00

Examines the sub-field of community psychology, which grew out of clinical psychology but is different from it. Theoretical and research perspectives on prevention, diversity, empowerment, resilience, community intervention, and ecological understandings of behavior. Causes of and interventions in social issues such as interpersonal and community violence and homelessness. Prereq: PSYC 401; 402; 502; 552, 553, or 561;/or permission. Writing intensive.

PSYC 765 - Dysfunctional Families and Therapy

Credits: 4.00

Family structure and function. Problem cycles of functioning (dysfunction) and their impact on family members. The multigenerational nature of dysfunction. Role differentiation; physical, sexual abuse; addictive patterns; issues of power/control; problems with intimacy development; clinical methods of intervention. Prereq: PSYC 402, 502, 561, 762, or permission. Writing intensive.

PSYC 771 - Psychology in 20th Century Thought and Society

Credits: 4.00

Reassesses, extends, and integrates knowledge of 20th century psychology within the historical perspective. Major figures, schools, systems, theories. Social, institutional, and international developments since the 19th century. Review of major fields of psychology. Prereq: PSYC 402; 502; or 571; or permission. Writing intensive.

PSYC 780 - Prenatal Development and Infancy

Credits: 4.00

Psychological development of infants from conception through second year of life. Factors and potential influences on reproductive health and prenatal physical and behavioral development. Transition to parenthood, infant temperament and parent-infant relationships. Developmental patterns of specific capabilities. Prereq: PSYC 402; 502; 581 or FS 525; or permission. Writing intensive.

PSYC #783 - Cognitive Development

Credits: 4.00

Theories of cognitive development. Comparison among major theorists on how knowledge, thought, and development are defined and studied. Current research, including cognitive development; memory; perceptual processes; language. Prereq: PSYC 402; 502; 581; or permission. Writing intensive

PSYC 785 - Social Development

Credits: 4.00

Examines development of social interactions. Emphasizes important social relationships for the child (e.g., attachment to parents and friendships with peers). Considers other topics of relevance to social developmentalists, such as temperament, aggression, social cognition, and sex roles. Prereq: PSYC 402; 502; 581; or permission. Writing intensive.

PSYC 791 - Advanced Topics

Credits: 4.00

Advanced material in which instructor has specialized knowledge through research and study. May be repeated for different offerings. Topics under this listing may be used to fulfill a major requirement in category CII. A) Psychology as a Social Science, B) Social Psychology, C) Personality, D) Abnormal/Counseling, E) History of Psychology, F) Child Development, G) Adult Development. Prereq: PSYC 402; 502; plus other prerequisites when offered, or permission. Special fee with some topics. Writing intensive.

PSYC 793 - Internship

Credits: 4.00 to 8.00

Supervised practicum in one of several cooperating New Hampshire mental health/rehabilitation facilities. Coursework knowledge applied to meaningful work and team experience. Commitment includes a negotiated number of weekly work hours and weekly seminars. Supervision by institution personnel and the instructor. A maximum of 4 credits may be applied to the Psychology major. Course applications accepted beginning in March for fall term and October for spring term. Prereq: permission; PSYC major; PSYC 402; 502; 561 Pre- or coreq: PSYC 762.

PSYC 794 - Advanced Internship**Credits:** 1.00 to 8.00

Supervised advanced practicum experience in co-operating New Hampshire mental health/rehabilitation facilities. Expands and builds on experiences and skills acquired in PSYC 793. Commitment includes a negotiated number of hours of work per week and participation in weekly seminars. Supervision done by institution personnel and instructor. Prereq: PSYC 793; permission. 1 to 8 credits.

PSYC 795 - Independent Study**Credits:** 1.00 to 4.00

A) Physiological, B) Perception;, C) History and Theory, D) Behavioral Analysis, E) Social, F) Cognition, G) Statistics and Methods, H) Experimental, I) Personality, J) Developmental, K) Counseling, L) Psychotherapy, M) Research Apprenticeship, N) Teaching of Psychology, O) Advanced Externship (content area to be determined). Arranged by the student with a psychology faculty sponsor. Learner/sponsor contract required. Minimum time commitment: three hours per credit per week. Enrollment by permission only. Prereq: PSYC 402; 502; or permission.

PSYC 795B - Independent Study in Perception**Credits:** 1.00 to 4.00

A

PSYC 795C - Independent Study in History and Theory**Credits:** 1.00 to 4.00

A

PSYC 795E - Independent Study in Social Psychology**Credits:** 1.00 to 4.00

A

PSYC 795F - Independent Study in Cognition**Credits:** 1.00 to 4.00

A

PSYC 795H - Honors/Independent Study**Credits:** 1.00 to 4.00

See description for PSYC 795.

PSYC 795I - Independent Study in Personality**Credits:** 1.00 to 4.00**PSYC 795J - Independent Study in Developmental Psychology****Credits:** 1.00 to 4.00**PSYC 795K - Independent Study in Counseling****Credits:** 1.00 to 4.00**PSYC 795L - Independent Study in Psychotherapy****Credits:** 1.00 to 4.00**PSYC 797 - Senior Honors Tutorial****Credits:** 4.00

For senior psychology honors students. Students propose honors theses under the supervision of psychology faculty. Theses proposed and begun in this course are completed in PSYC 799. Prereq: admission to psychology honors program. (Typically offered in fall.)

PSYC 799 - Senior Honors Thesis

Credits: 4.00

Under supervision of psychology department faculty members, students complete the honors projects proposed and begun in PSYC 797. The honors project, which should be empirical in nature, culminates in an oral presentation at the end of the semester. Prereq: admission to psychology honors program; PSYC 797. Special fee. (Typically offered in spring.)

Recreation Management & Policy

RMP 444 - Building a Culture of Peace

Credits: 4.00

Peace is more than just the absence of war. A culture of peace incorporates respect and dignity for all persons, stewardship of natural resources, a striving toward justice and equality, the non-violent resolution of conflicts, non-hierarchical decision-making and participatory community life. Students in this course explore the origins and concepts of peace culture. Students experience the elements of a culture of peace as they are empowered to create a peace culture within the classroom and as they share peace culture with a broader community through service learning projects.

RMP 444A - Taking the "Dis" out of Disability

Credits: 4.00

In contrast to the traditional view of disability as a defect, students learn how disability provides a unique vantage point on our world and can be perceived as an ordinary part of the twists and turns of life. Examines the history of social responses to disability, with an emphasis on the present day concepts of inclusion and self-determination. Students explore expressions of the disability experience through print and visual media. Writing intensive.

RMP 490 - Recreation and Leisure in Society

Credits: 4.00

Examines the historical and philosophical foundation of recreation and leisure. Emphasizes concepts, theories, and the interrelationships between factors (social, economic, political, and environmental), which influence people's leisure attitudes and behavior. Explores implications of leisure for holistic and balanced living.

RMP 501 - Recreation Services for Individuals with Disabilities

Credits: 4.00

Presents and discusses issues that concern the delivery of quality leisure services to individuals with disabilities in community settings. Lab requirements as well as classroom activities provide opportunities for practical experience. Prereq: permission. Lab.

RMP 502 - Foundations of Therapeutic Recreation

Credits: 4.00

History and professional concepts of therapeutic recreation and the roles and functions of the therapeutic recreation specialist.

RMP 503 - Therapeutic Recreation Rehabilitation Principles & Interventions

Credits: 4.00

Introduces the rehabilitation principles and recreational therapy interventions used by therapeutic recreation specialists to improve functioning for people with physical and cognitive impairments. Students learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life. A lab provides students with the opportunity to use a variety of assistive techniques, adaptive devices, and equipment to support individuals and achieve maximum independence and promote a healthy leisure lifestyle. Prereq: RMP 490, 501, 502. Special fee.

RMP 504 - Therapeutic Recreation Mental Health Principles and Interventions

Credits: 4.00

Introduces mental health principles and recreational therapy interventions to improve functioning for people

with emotional, social, and behavioral impairments. Students will learn and apply fundamental processes of clinical reasoning and treatment program planning to improve quality of life for persons with emotional, social, and behavioral impairments. Prereq: RMP 490, 501, 502.

RMP 511 - Issues of Wilderness and Nature in American Society

Credits: 4.00

Provides students with an overview of the evolving relationship between wilderness/nature and American society. Examines the philosophy, ethics, and societal values in American society and its relationship to our natural wilderness. Recent issues are used as case studies in order for students to articulate, defend, and critique the ethical issues presented. Students are responsible for understanding and applying philosophical approaches developed by philosophers, writers, and activists associated with the wilderness, sustainability, biodiversity, hunting, suburban sprawl, environmental activism, endangered species, organic foods, and genetic engineering.

RMP 557 - Recreation Services Program Design

Credits: 4.00

Introduces the student to a systems approach to program design. Includes needs assessment techniques, goal setting and objectives writing, process of group planning, public relations, program evaluation, and leisure education. Applied projects are required. Prereq: RMP 490 or permission. Lab.

RMP 558 - Program Supervision and Leadership

Credits: 4.00

Emphasizes specific knowledge of leisure activity categories with related organization and leadership techniques. Other topics include facilitation of activity throughout the lifespan and planning for instruction, safety, and crisis confrontation. Applied projects are required. Prereq: RMP 557 or permission.

RMP 560 - Recreational Sport Management

Credits: 4.00

Explores and examines the theoretical foundations and basic skill methods, and techniques necessary for the effective and efficient delivery of recreational sport programs within a variety of collegiate, public, quasi-public, and private settings, agencies and/or organizations.

RMP #561 - Introduction to Outdoor Recreation

Credits: 4.00

The history, delivery system, social and economic impacts, and management tools for outdoor recreation. Includes identification of contemporary issues, problems, and opportunities in recreation resource management. Lab.

RMP 563 - Recreation Management and Policy Practicum

Credits: 2.00

Designed to provide first and second year RMP majors the opportunity to observe and practice leadership skills in clinical and community-based settings. Students complete a 40-45 hour practicum at an approved site. Successful completion of a practicum is prerequisite to the professional internship, RMP 664. Students are responsible for transportation and housing. Prereq: RMP 490, 501. Permission required. May be repeated for a total of 4 credits. Cr/F.

RMP 565 - Introduction to Child Life

Credits: 4.00

When facing acute, chronic or life-threatening illness and traumatic injuries, children and families have unique needs within the medical system. The purpose of this course is to provide an introduction to the theory and practice of the child life profession and family centered care. Topics include children's emotional reactions to hospitalization, use of play, preparation, and family support, designing healing environments,

and specializations within the field. Permission required. (Also listed as FS 565).

RMP 593 - Special Topics

Credits: 2.00 to 4.00

A) Camping and Outdoor Education for Individuals with Disabilities, B) State Parks: Their Management and Role, C) Therapeutic Recreation in the School Setting, D) Social Psychology of Leisure, E) New Hampshire's Recreation/Ski Industry, F) Child Life Internship, G-Z) Interdisciplinary. Specialized courses covering information not presented in regular course offerings. Description of topics available in department office during preregistration. Prereq: RMP majors or permission. May be repeated but not in duplicate areas. Special fee for RMP 593G.

RMP 593W - Special Topics

Credits: 2.00 to 4.00

See description for RMP 593. Writing intensive.

RMP 600 - Multicultural Perspectives and Leisure

Credits: 4.00

Explores the multicultural issues within a pluralistic society both generally and as they are specifically evident through leisure, recreation, and play behaviors, values, and possibilities. Course topics and assignments applied to the exploration of three questions: (1) How does leisure expression honor, value, and preserve unique cultural and ethnic heritages? (2) Does and/or can leisure expression create meaningful bridges across interpersonal and societal differences? (3) What are the moral and ethical responsibilities and opportunities for leisure services providers within a pluralistic society? Writing intensive.

RMP 602 - Clinical Treatment Lab I

Credits: 2.00

A clinical lab that provides students with the opportunity to apply principles central to the effective delivery of therapeutic recreation individualized treatment planning, client assessment, documentation, and activity analysis with members of one of two community sites located in the Seacoast region. Students are required to participate in weekly sessions (five to six hours per week) for a total of 15 weeks. Prereq: RMP 490, RMP 501, RMP 502. Permission required. Cr/F.

Co-requisites: RMP 603

RMP 603 - Assessment and Treatment Planning in Therapeutic Recreation

Credits: 4.00

Addresses the principles of activity analysis, client assessment, documentation, individualized program planning, selection of interventions, and collaboration with a treatment team. Prereq: RMP 490; 502.

RMP 604 - Therapeutic Communication and Facilitation in Therapeutic Recreation

Credits: 4.00

Addresses specific clinical knowledge and skills essential to therapeutic recreation service delivery including clinical interviewing, group process, leisure education, treatment approaches, and intervention techniques. Prereq: RMP 490; 502; 603.

RMP 605 - Clinical Treatment Lab II

Credits: 2.00

A clinical treatment lab that emphasizes the concepts and intervention techniques used in the clinical application of therapeutic recreation services, which relate to practice. Students provide therapeutic recreation services to members of one of two community sites located in the Seacoast region. Students are required to participate in weekly sessions (five to six hours per week) for a total of 15 weeks. Prereq: RMP 603 and RMP 602. Permission required. Cr/F.

Co-requisites: RMP 604

RMP 654 - Professional Development and Ethics

Credits: 2.00

Focuses on preparing students for the internship experience through the identification of career goals and the selection of an approved internship site. A portfolio emphasizing process skills in resume construction, interviewing techniques, establishing internship goals and objectives, and self-assessment is developed. Majors only. Prereq: permission. Letter Grade/IA (continuous grading).

RMP 663 - Management and Policy in Leisure Services

Credits: 4.00

Comparative analysis of administrative processes within various organizations as well as the political and policy-making roles of the managers in the private and public sectors. Emphasizes organizational development, fiscal management, and budgeting as tools used in formulating and implementing policy. Prereq: RMP 557 or permission.

RMP 664 - Internship

Credits: 14.00 to 16.00

A full-time 14-16 week internship in Therapeutic Recreation or Program Administration. Supervised work experience in an approved profession-related agency. An IA (continuous grading) grade (yearlong course) may be assigned at the end of the semester or summer session. Prereq: majors only; permission. Special fee. Cr/F.

RMP 665 - Applied Marketing and Communications in Recreation Services

Credits: 4.00

Prepares students to respond effectively to an information-based society. Course topics are applied to the leisure service delivery systems and include microcomputer systems and applications, standardized information systems, networking, and dissemination of information through audio-visual, print, and mass media. Prereq: RMP 557 or permission.

RMP #667 - Recreation Resource Planning

Credits: 4.00

Overview of site-planning techniques and issues as currently practiced by recreation resource agencies at local, state, and national levels. Relationship of planning to management, policy, and practice; current trends in planning and likely future directions. Extensive use of field trips to enable students to learn how to read landscapes in order to use natural features in design as well as to enhance visitor experiences. Prereq: RMP 490; RMP major or permission.

RMP 668 - Youth Culture and Programs

Credits: 4.00

Emphasizes the identification of community and personal issues youth face in growing up as well as institutional and programmatic support available to assist youth. The course also examines the leadership, administrative, financial, and marketing tools necessary to develop successful youth programs and services. Prereq: RMP 490 or permission for non-majors. Writing intensive.

RMP 680 - Festival and Event Planning

Credits: 4.00

Introduces the planning, marketing, management, and evaluation of festivals and special events. Explores the theories and practices relevant to successful event planning for host community residents and visitors.

RMP 700H - Senior Honors Project

Credits: 4.00 to 6.00

Under the direction of an RMP faculty member, students complete either a supervised research or applied field study project that builds on their honors coursework. Students submit a written proposal for approval and present the results at the completion of their project. Applied studies address a specific need or problem of a local agency or organization. Prereq: permission required.

RMP #705 - Management and Policy in Therapeutic Recreation

Credits: 4.00

Addresses National Council for Therapeutic Recreation Certification knowledge areas concerning management competency. Students acquire knowledge of current principles and procedures for assuming an administrative role in the therapeutic recreation profession. Issues and practices related to budgeting, reimbursement, quality improvement programs, and comprehensive program planning. Prereq: RMP 502; 603; 604.

RMP 711 - Recreation Resource Management

Credits: 4.00

Examines the supply and demand of natural resources for outdoor recreation uses, with emphasis on relationships between public and private roles and responsibilities. Social, environmental, and economic impacts of outdoor recreation use are discussed. Current principles and techniques of recreation resource planning and management are outlined. Prereq: seniors or permission.

RMP 724 - Grantsmanship, Evaluation, and Research

Credits: 4.00

Emphasizes understanding and application of grantsmanship, research techniques, and research writing. Addresses the process of program planning and grant proposal development. Examines research methodologies and the evaluation processes as applied to recreation and allied health settings. Critical assessment of uses and limitations of research for recreation. Prereq: RMP 557, 663 and senior RMP major or permission. Writing intensive.

RMP #730 - Camp Administration and Leadership

Credits: 4.00

Provides students with an understanding of administrative and organizational practices in structured camp settings. Students are exposed to the theory, practice, and challenges of program planning for youth and adult development within the recreation context of camping. Explores current sociological, environmental, economical, and legislative trends influencing contemporary camp management. Permission required.

RMP #743 - Culture and Environmental Interpretation

Credits: 4.00

This course focuses on the communication process and practices used by parks and recreation professionals to explain and interpret the special characteristics of cultural and environmental resource sites for visitors. Conceptual principles for planning interpretative programs, as well as techniques for analyzing and disseminating information and entertainment through various media (personal interactions, verbal presentations, exhibits, publications, and other programs) will be discussed. Delivery of interpretive messages across a variety of audiences, strategies for programming interpretive services, and the administration and evaluation of interpretive services in recreation settings will be examined.

RMP 760 - Community Sport Organizations: Administration and Development

Credits: 4.00

The administration and development of participant-based community sport organizations and resources. Emphasizes the organizational, administrative, and programming competencies necessary to effectively manage these resources. Focuses on problems and research-oriented solutions related to the management of community sport organizations. Prereq: RMP 560 or permission of the instructor.

RMP 770 - Management and Design of Recreation and Park Facilities

Credits: 4.00

Provides students with an orientation to the theories, design, operation, and functions of recreational facilities. Topics include facility development, operational considerations, and auxiliary functions that impact the manager's role. Students gain insight into key areas of facility management through visitations to actual facilities. Prereq: RMP 705; permission. Special fee.

RMP 772 - Law and Public Policy in Leisure Services

Credits: 4.00

Topics including the law of torts, contracts, property, civil rights, risk management, and legal research are addressed in the context of leisure services and recreation resources. Public policy and professional advocacy implications are examined in relation to legislative and judicial systems. Prereq: RMP 557, 663, and senior RMP major or permission. Writing intensive.

RMP #775 - Entrepreneurial and Commercial Recreation

Credits: 4.00

Principles of business planning and development as applied to the private sector leisure services industry. Emphasizes knowledge of key commercial leisure services profiles and their intersection with allied professions such as hospitality and tourism. Course topics include entrepreneurship, business planning, needs assessment, product development, selling, financing, legal designations, and business operations leading to the development of a business plan for a new entrepreneurial recreation enterprise. Prereq: RMP 663.

RMP 793 - Advanced Topics

Credits: 2.00 to 4.00

A) Area and Site Planning, B) Concepts and Trends in Therapeutic Recreation, and C) Conference Planning. Topics presented by instructors with specialized knowledge gained through professional practice, research, and study. Descriptions of topics available in department office during preregistration. May be repeated but not in duplicate areas. 2 to

RMP 796 - Independent Study

Credits: 1.00 to 4.00

Individual study and/or research relating to leisure-oriented topics. Prereq: permission.

Religious Studies

RS 483 - History of World Religions

Credits: 4.00

Introduces the religions of the world in terms of historical development, relationship to society, belief system, central texts, and ritual practices. (Also offered as HIST 483.)

RS 483W - History of World Religions

Credits: 4.00

See description for RS 483. Writing intensive.

RS 576 - Hebrew Bible in Historical Context

Credits: 4.00

An introductory study of the Hebrew Bible, or Old Testament, examining the development of biblical literature in the context of ancient Near Eastern cultures and history. Includes the interpretation of creation stories and the patriarchal narratives using literary and folklore methods, the transformation of Israelite religion from Moses to David to Ezra, the role of prophets and nature of ancient prophecy, the concept of the messiah, "wisdom" literature and the biblical interpretations of misfortune, the formation of a biblical canon, and the critical analysis of sacred texts. (Also offered as HIST 576.) Writing intensive.

RS 584 - Patterns in World Religions

Credits: 4.00

Introductory course on the comparison of religions and religious patterns. Examining cross-cultural themes such as sacred places, sacred books, and sainthood, students become acquainted with the concepts and methods used in the historical study of religions. Primary and secondary readings encompass a wide variety of religious practices and ideas. (Also offered as HIST 484.) Writing intensive.

RS 600 - Special Topics

Credits: 4.00

Studies of particular religious traditions, or periods within those traditions, or special topics and issues of concern within religious studies such as mythology, ritual, mysticism, etc. May be repeated up to a maximum of 12 credits.

RS 601 - Seminar in Religious Texts

Credits: 4.00

Close study of sacred text(s) from a particular religious tradition (Islam, Christianity, Buddhism, Judaism, etc.) or a thematic selection of texts across religions. (Also offered as HIST 601.)

RS #682 - Cults and Charisma

Credits: 4.00

Examines religious sects and charismatic leaders using case studies from history and the contemporary world, as well as analytical principles from religious studies and anthropology. Explores various approaches to the question, What makes a person powerful over others? in connection with the formation of messianic sects, the genesis of the "cult," the traditional authority of priests and kings, sainthood, the events at Jonestown and Waco, and the popular image of the "cult." Students learn to employ a variety of tools and models to understand historical situations of charismatic leadership. (Also offered as HIST 682.)

RS #689 - New Testament in Historical Context

Credits: 4.00

A study of the collection of writings known as the New Testament as both literature and historical documentation. Assigned readings from primary and secondary sources stress the historical, social, religious, and literary backgrounds of gospels, Paul's letters, and the Apocalypse, and include a variety of early Christian texts left out of the canonical New Testament. Other more general themes are the formation of the Christian canon, the division of the Jesus-movement from Judaism, the status of Jesus in his own time, the nature of parables, the end of the world, and the authority of women in early churches. Emphasizes the historical understanding of sacred scripture. (Also offered HIST 689.) Writing intensive.

RS 699 - Seminar in Religious Studies

Credits: 4.00

Advanced discussion of a particular theme in religious studies, meant both to give students a solid foundation in classic theories of religion and to explore new authors and ideas. Past topics have included ritual, possession, magic, and apocalypticism. Classes are in seminar format and culminate in a final research paper. (Priority to minors in Religious Studies.) Prereq: permission.

RS 770 - Anthropology of the Sinister

Credits: 4.00

Examines narratives of the sinister stories about witches, demons, vampires, and extraterrestrials that are told as if true. Investigates the cultural, political, and economic contexts of their production. Variants of the sinister are compared cross-culturally and trans-historically. Links between a recent worldwide upsurge in narratives of the sinister and the processes of globalization and modernity are emphasized. Seminar format; open only to juniors and seniors. (Also listed as ANTH 770).

RS 795 - Independent Study

Credits: 2.00 or 4.00

Independent study of traditions, topics, or figures within the scope of religious studies. Before registration, student must formulate a project and secure consent of a cooperating program/faculty member who will supervise the independent study.

RS 796 - Independent Study

Credits: 2.00 or 4.00

Independent study of traditions, topics, or figures within the scope of Religious Studies. Before registration, student must formulate a project and secure consent of a cooperating program/faculty member who will supervise the independent study.

RS XXX - Special message place holder

Credits:

Russian

RUSS 401 - Elementary Russian I

Credits: 4.00

For students without previous training in Russian. An introduction to contemporary standard Russian. Includes a cultural component. Topics include those which enable students to function in Russian in everyday situations (i.e. food, leisure activities, literature, transportation, music, sports, daily life.) Special fee.

RUSS 402 - Elementary Russian II

Credits: 4.00

See description for RUSS 401.

RUSS 425 - Introduction to Russia: Contemporary Society and Culture

Credits: 4.00

Introduction to contemporary Russian society and culture in English. Examines the "Russian mind" (as it was before 1917), the "Soviet mind," and how the two have clashed. A closer examination of how the Russians are adapting to the changes that have taken place in their country since the collapse of communism. Readings, films, realia. Themes to be discussed include leadership; authority and power; the Russian soul; family, women, youth, education, holidays and celebrations; and the new Russians. Special fee.

RUSS 500 - Selected Topics in World Literature

Credits: 4.00

Topics are chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, PORT 500, SPAN 500.) May be repeated for credit. Special fee.

RUSS 500W - Topics in World Literature

Credits: 4.00

See description for RUSS 500. Special fee. Writing intensive.

RUSS 503 - Intermediate Russian I

Credits: 4.00

Continued work in grammar, and writing with cultural components. A review of the fundamentals of grammar and syntax. Readings and cultural material included. Topics include: university life, travel, cultural activities, cooking, politics. Special fee.

RUSS 504 - Intermediate Russian II

Credits: 4.00

See description for RUSS 503.

RUSS 521 - Devils, Deities, and Madness in Russian Literature

Credits: 4.00

Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on the themes of devils, deities, and madness. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites. Special fee. Writing intensive.

RUSS 521W - Devils, Deities, and Madness in Russian Literature

Credits: 4.00

See description for RUSS 521. Special fee. Writing intensive.

RUSS 522 - Morality, Sex and Revolution in Russian Literature

Credits: 4.00

Introduces Russian literature from a variety of perspectives. Selected works by famous and lesser known Russian writers on themes of morality, sex, and revolution. Literary texts, as well as film versions of literary texts, are considered in their historical and cultural contexts. Lectures, readings, and discussions in English. Open to all students, including freshmen. No prerequisites. Special fee. Writing intensive.

RUSS 522W - Morality, Sex and Revolution in Russian Literature

Credits: 4.00

See description for RUSS 522. Writing intensive.

RUSS 525 - Russia: Mythology and Propaganda

Credits: 4.00

Exploration of the relationship between mythology and culture as a part of the cultural identity of the Russian people, before the 1917 Revolution, during the Communist period, and since the fall of the Soviet Union. Focus on pre 1917 Slavic pagan, Christian, and folk mythology vis-a-vis Western mythology, on 20C propaganda and control of the "public mind" designed to reshape national identity and on the current deconstruction, reform, and rebirth of the old mythology. Special fee.

RUSS 533 - History of Slavic Languages and Culture

Credits: 4.00

A survey of the history of the Russian language in a historical and cultural context. Overview of the changes in sounds, structure and vocabulary from Proto-Indo-European through Old Church Slavic, Old Russian to contemporary Russian. Readings and discussions of historical events, culture and civilization parallel the chronology of the studied linguistic period. Special fee.

RUSS 593 - Myths, Visions and Issues in Russian Literature and Society

Credits: 4.00

Discussion and analysis of topics and authors in Russian literature, film, and culture. A variety of different topics or authors is covered each semester: (A) the Giants of Russian Literature: Dostoevsky and Tolstoy, (B) Dostoevsky, (C) Tolstoy, (D) Jewish Voices in the Russian Empire, (E) The Devil in Russian Literature, (F) the Myth of St. Petersburg, (G) Death and Revolution, (H) Russian Fairy Tales, (I) Drama, (J) Women's Voices, etc. Lectures, readings, and films with English subtitles, and discussions in English. Open to all students. Special fee.

RUSS 593W - Myths, Visions and Issues in Russian Literature and Society

Credits: 4.00

See description for RUSS 593. Writing intensive.

RUSS 595 - Russian Practicum

Credits: 2.00

Participants earn credit for approved, uncompensated, pre-professional activities and special projects, including K-12 outreach, assisting in undergraduate courses, work with professional organizations, businesses, social services, non-profits, NGOs or educational organizations in a Russian context and with on-site supervision. Writing assignments are required and vary depending upon the project. Enrollment limited to sophomores, juniors and seniors who are Russian majors and have a B or above average in Russian language courses. Cr/F.

RUSS 601 - Russian Conversation and Phonetics

Credits: 4.00

Practical application of fundamental phonetic theory of spoken Russian. Designed to increase fluency and accuracy in conversation. Prereq: RUSS 504 with a grade of C or better; permission. Special fee.

RUSS 631 - Advanced Russian Conversation and Composition

Credits: 4.00

Advanced spoken and written Russian designed to include all four language skills (speaking, reading, writing, listening.) Readings on contemporary cultural topics and vocabulary building. Composition and conversation based on Russian-language media and literature. Special fee.

RUSS 632 - Advanced Russian Conversation and Composition

Credits: 4.00

See description for RUSS 631.

RUSS 685 - Study Abroad

Credits: 16.00

Studies at a Russian institution of higher learning. Interested students should consult with a Russian advisor. Prereq: primarily for juniors and seniors who have completed RUSS 632 or equivalent with a grade of B (3.00) or better. Special fee. Cr/F. (IA grade will be assigned until official transcript is received from the foreign institution.)

RUSS 686 - Study Abroad

Credits: 16.00

See description for RUSS 685. Special fee. Cr/F.

RUSS 691 - Readings in Russian Literature

Credits: 4.00

Linguistic and stylistic characteristics of works of important authors of the 19th and 20th centuries. Readings, lectures, and papers entirely in Russian. Special fee. Writing intensive.

RUSS 693 - Myths, Visions and Issues in Russian Literature and Society

Credits: 4.00

Same as RUSS 593, except that in addition majors are required to do selected readings in Russian and/or conduct research assignments in English on a specified topic. Final project required. Writing intensive option. Special fee.

RUSS 693W - Myths, Visions and Issues in Russian Literature and Society

Credits: 4.00

See description for RUSS 693. Writing intensive.

RUSS 721 - Topics in Contemporary Russian Literature: From Chekhov to Post-Modernism

Credits: 4.00

Reading, discussion, and close analysis of works of prose fiction and/or poetry from post-19th-century Russian literature within various contexts (literary-historical, socio-political, cultural, artistic, etc.) of the given period. All readings, written assignments, and class discussion in Russian. Prereq: RUSS 691 or equivalent or by permission. Special fee. Writing intensive.

RUSS 725 - Topics in Russian Culture and Society

Credits: 4.00

Historical, geographical, social, political, intellectual and artistic developments in Russia that have influenced contemporary Russian society and culture. Readings, class discussions, and films. Conducted entirely in Russian. Special fee. Writing intensive.

RUSS 733 - History of Slavic Languages and Culture

Credits: 4.00

A survey of the history of the Russian language in a historical and cultural context. Overview of the changes in sounds, structure and vocabulary from Proto-Indo-European through Old Church Slavic, Old Russian to contemporary Russian. Readings and discussions of historical events, culture and civilization parallel the chronology of the studied linguistic period. Special fee.

RUSS 790 - Advanced Language and Style

Credits: 4.00

For students who have a strong, active control of grammar. The most difficult problems of Russian grammar and syntax in poetry and prose. Develops confidence in expression both in everyday situations and in abstract concepts (emphasis on the latter). Prereq: grade of C or better in last Russian language course taken. Special fee. Barring duplication of material, may be repeated for a maximum of 8 credits. Writing intensive.

RUSS 795 - Independent Study

Credits: 1.00 to 4.00

Open to highly qualified juniors and seniors. To be elected only with permission of the Russian program coordinator and the supervising faculty member or members. Barring duplication of subject, may be repeated for credit. Special fee.

RUSS 796 - Independent Study

Credits: 1.00 to 4.00

See description for RUSS 795.

RUSS 797 - Special Studies in Russian Language, Literature, and Culture

Credits: 2.00 or 4.00

Selected topics in language, literature, and culture. Barring duplication of subject, may be repeated for credit. Special fee.

RUSS 798 - Special Studies in Russian Language, Literature, and Culture

Credits: 2.00 or 4.00

See description for RUSS 797.

Sign Language Interpreting

INTR 430 - Introduction to Interpretation

Credits: 4.00

A survey of traditional and contemporary perspectives on interpretation and interpreters; introduces the cognitive processes involved in interpretation and factors that influence those processes. Several models of interpretation explored. Particular attention given to interpretation as an intercultural, as well as interlingual, process. Students engage in a research project related to course content.

INTR 438 - A Socio-cultural Perspective on the Deaf Community

Credits: 4.00

Introduction to the deaf community and deaf culture. Discussion of similarities to, and differences from, mainstream hearing culture. Supplemental videotapes focus on aspects of culture including deaf education, autobiographical sketches, deaf norms and values, and deaf literature and folklore. Theoretical issues of culture and linguistics applied to deaf culture, American Sign Language, and the variety of cultural perspectives of the deaf community. Students engage in a research project related to course content. Pre- or Coreq: ENGL 401. Writing intensive.

INTR 439 - Ethics and Professional Standards for Interpreters

Credits: 4.00

Seminar course using readings, theory, and discussion of hypothetical situations and role plays to explore ethical standards and dilemmas in ASL-English interpretation. Covers personal and professional values, ethics, and morality; professional principles; power, responsibility, and group dynamics; the interpreter's role; cross-cultural issues; and the decision-making process. Students engage in a research project related to course content. Prereq: INTR 430. Writing intensive.

INTR 539 - Comparative Linguistic Analysis for Interpreters

Credits: 4.00

Examines the basic similarities and differences between the linguistic structure of American Sign Language and spoken English; focuses on each language's communication functions and how they serve these functions. Students engage in a research project related to course content. Prereq: ENGL 505; Pre-or Coreq: ASL 532.

INTR 540 - Principles and Practices of Translation

Credits: 4.00

Introduction to theory and practice of translation. Students analyze pre-prepared interpretations and translations to discover how expert interpreters produce target language messages which are pragmatically equivalent to the source language messages. Particular attention paid to the form/meaning distinction. Students prepare translations from texts of their choosing. Pre- or Coreq: ASL 532.

INTR 599 - Special Topics

Credits: 1.00 to 4.00

Occasional offerings dependent on availability and interest of faculty. Barring duplication of subject, may be repeated up to a maximum of 8 credits.

INTR 630 - Principles and Practices of Consecutive Interpretation

Credits: 4.00

Introduction to the theory and practice of consecutive interpretation. Analyzes and integrates specific subtasks of the interpreting process culminating in the performance of prepared and spontaneous

consecutive interpretations. Students work with a variety of texts, language models, and settings with the goal of producing a grammatically correct target language text which is equivalent to the source language text. Prereq: INTR 540.

INTR 636 - Principles of Simultaneous Interpretation

Credits: 4.00

Introduces the theory and practice of simultaneous interpretation. Particular attention is given to processes involved in translation from consecutive to simultaneous interpreting. The advantages and limitations of both types of interpreting are compared. Students apply theoretical information to the process of simultaneous interpreting. Students engage in a research project related to course content. Prereq: INTR 630.

INTR 732 - Simultaneous Interpretation of Discussions, Speeches, and Reports

Credits: 4.00

Focuses on simultaneous interpretation of group discussions, speeches, and reports. Students apply theory learned in INTR 636 to a variety of texts, language models, and settings. Students engage in a research project related to course content. Prereq: INTR 636. Writing intensive.

INTR 734 - Field Experience and Seminar I

Credits: 4.00

Gives students the opportunity to observe professional working interpreters, with some direct interpreting experience as deemed appropriate. Students integrate knowledge, theoretical understanding, and skills acquired in the interpreting program by working closely with on-site supervisors (interpreters) in addition to attending a bi-weekly seminar with the UNHM field experience coordinator. Pre- or Coreq: INTR 732.

INTR 735 - Field Experience and Seminar II

Credits: 4.00

Gives students the opportunity to gain supervised interpreting experience. Students engage in actual interpreting assignments and receive support and mentorship from a professional interpreter, enabling them to integrate knowledge, theoretical understanding, and skills acquired in the interpreting program. Students work closely with on-site supervisors (interpreters) in addition to attending a biweekly seminar with the UNHM field coordinator. Prereq: INTR 734.

INTR 798 - Special Topics

Credits: 4.00

Selected topics that vary by semester. Possible course topics are interpreting in educational settings, working with specific populations, or other topics of importance to interpretation. Descriptions available in departmental office during preregistration. Students engage in a research project related to course credit. Prereq: INTR 636; permission. May be repeated for credit if topics differ

Social Science

SCSC 681 - Internships

Credits: 16.00

Fieldwork in a state or local government department, agency, or institution, or in an approved private agency. Work is under supervision of agency. Department chairperson or representative is responsible for arranging the program. Offered through departments of history, political science, psychology, sociology, and anthropology. Prereq: senior standing. Special fee.

SCSC 682 - Washington Internship

Credits: 12.00

Internship placements in Washington, D.C., through the Washington Center. Individual internships arranged with legislative and judicial offices, law firms, public interest organizations; in the arts, the media, labor, international affairs, business, consumer affairs. Supervision by agency personnel and faculty sponsor. Students should have above-average academic records before applying. Open to all majors. Applications available in the National Student Exchange Office, Hood House. Prereq: junior or senior. Student must also register for a graded, 4-credit independent study in the student's major. credit variable to 12 credits. Special fee. Cr/F.

Social Work

SW 424 - Introduction to Social Work

Credits: 4.00

Introduces the learner to the field of social work with emphasis on the "person-in-environment" and attention to a range of practice approaches to understanding and assisting of the human condition. An overview of the history, values, and ethics of the profession. Includes various fields of practice in which social workers are employed. 20 hour/semester service learning experience at community social service agencies required. Special fee.

SW 444 - You've Got Your Troubles, I've Got Mine

Credits: 4.00

A seminar for traditional first- or second-year students. Examines the many personal losses typical for students leaving home for the first time. Guest speakers from various disciplines (e.g., social work, therapeutic recreation, nursing, family studies). The various ways one may find and give informal support to others dealing with loss are explored. In addition, the personal responses allowing one to better cope with adversity and ways of expressing grief are explored. Group work brings the class together as an informal support network. Students exchange ideas in techniques used to deal with personal loss and develop an informal support network to use after the course has ended.

SW 525 - Social Welfare Policy: History of Social and Economic Justice

Credits: 4.00

An overview of the history and current status of social welfare policy in the United States. Considers the origins, development, and analysis of significant policies, values, attitudes and other issues related to the social welfare system and the delivery of service. Focuses on policy analysis from a social and economic justice perspective.

SW 550 - Human Behavior and Social Environment I

Credits: 4.00

Introduces human behavior and development as it influences and is influenced by multiple factors in the social environment, including individual genetic and biological composition, race, gender, age, socioeconomic status, ethnicity, geographic location, physical appearance, and ability. How these factors operate throughout the life cycle. Provides a knowledge base and perspective to understand a client's behavior, attitude, and values in relation to the attitudes and values of the social work professional and the larger society.

SW 551 - Human Behavior and Social Environment II

Credits: 4.00

Agents of socialization that most significantly affect family, group, and organizational development and behavior within an ecosystems framework. Particular attention is paid to the influence of class, gender, race, ethnicity, religion, age, sexual orientation and other aspects of diversity on development and behavior of larger systems.

SW 601 - Research Methods in Social Work

Credits: 4.00

Introduces students to practitioner-researcher role in social work. Critical evaluation of, and introduction to research including project design, survey and evaluative methodologies. Introduction to statistics used in research process. Each student completes an individual research project. Cannot be taken for credit after SOC 601 or PSYC 502. Prereq: SW 524 and junior or senior standing or permission. Writing intensive.

SW 622 - Social Work Practice: Interventions with Individuals and Families

Credits: 4.00

Introduces methods and practice. Basic principles, values, and ethics, interviewing skills, problem assessment, and contracting of social work practice with individuals and families are studied. Skills training in lab sessions. Prereq: SW 524 or permission of instructor. Must have junior or senior status. Writing intensive.

SW 623 - Social Work Practice: Interventions with Groups, Organizations and Communities

Credits: 4.00

Continuation of SW 622. Delineation and study of intervention and change strategies differentiated with individuals, groups, and communities. Prereq: SW 622. Special fee. Writing intensive.

SW 625 - Social Welfare Policy in a Global Context

Credits: 4.00

Builds on the curricular content covered in Introduction to Social Welfare Policy (SW 525). Both courses view social welfare policy as the framework from which social work services are developed and delivered. This course examines the macroeconomic context for policy analysis and advocacy and integrates policy and practice through student research and analysis of specific social problems. Policymaking is analyzed in legislative, community, organizational, and global environments emphasizing advocacy in the pursuit of social and economic justice. Prereq: SW 424, SW 525. Special fee.

SW 640 - Social Work Field Experience I

Credits: 5.00

Majors are placed in a social welfare setting for a minimum of 225 hours; individual arrangements with faculty coordinator. Prereq; SW 622 and permission. Coreq; SW 640A. Special fee. (No credit toward a minor.) Cr/F.

Co-requisites: SW 640A

SW 640A - Social Work Field Experience I: Seminar

Credits: 3.00

This weekly seminar, held concurrently with Social Welfare Experience I, integrates the field experience with social work theory and concepts learned throughout the curriculum by class discussion, exercises, readings and written assignments. Seminar I provides an opportunity for orientation to field, an overview of field requirements, review of the Code of Ethics, and use of small group discussion for problem solving. Students learn to use supervision effectively, to participate in the helping process, and to manage their own stress. Students learn to assess the impact of policy on the client system, agency and worker and to use research to inform practice. Prereq: SW 622 and permission.

Co-requisites: SW 640

SW 641 - Social Work Field Experience II

Credits: 5.00

A continuation of SW 640 with a minimum of 225 hours. Prereq: SW 640 and permission. Coreq: SW 641A. (No credit toward a minor.) Cr/F.

Co-requisites: SW 641A

SW 641A - Social Work Field Experience II: Seminar

Credits: 3.00

This is a continuation of Social Welfare Field Experience I: SW 640A and builds upon the concepts presented in the student's first field practice seminar. This seminar meets weekly for one and a half hours and is held concurrently with the field placement. It is designed to integrate the field experience with social work concepts through class discussion, reading and written assignments. Topics include but are not

limited to, understanding and using agency structure to enhance client interactions, preparing client assessment and other documents, enhancing the client-worker therapeutic interaction, effective use of supervision, effective use of self in practice, prevention of burn-out, termination with clients and with agency staff, and values and ethics. Prereq: SW 640/640A and permission.

Co-requisites: SW 641

SW 697 - Special Topics in Social Welfare

Credits: 4.00

Seminar for advanced majors. Topics may include: A) Alcohol and Alcoholism, B) Drugs and Chemical Dependency, C) Income Maintenance, D) Health Care, E) Child Welfare, F) Aging, G) Mental Health, or H) Developmental Disabilities. May be repeated for different topics. Prereq: permission.

SW 701 - Women and Aging

Credits: 4.00

Analysis of the major theories about social conditioning of aging women and its effects in contemporary society. Human service response. psychosocial, biological, legal, and economic implications. Prereq: senior status or permission.

SW 705 - Child and Adolescent Risks and Resiliency: Program, Policy and Practice

Credits: 4.00

Examination of the major policy and program questions of child welfare with a focus on child care and protection, adoption and foster care, juvenile delinquency, service delivery, and concepts of treatment in public and private programs. Prereq: senior status or permission.

SW 711 - Understanding Mental Illness

Credits: 4.00

An overview of the public mental health system focusing on people affected by severe and persistent mental illness. Reviews the current service system and its history; major mental illness, psychosocial rehabilitation, and treatment; and community support systems. Prereq: Senior status or permission.

SW 712 - Understanding Developmental Disabilities

Credits: 4.00

Analysis of the complex social contexts of people with developmental disabilities. Explores and questions traditional approaches and the current system. Examines family and community services and resources. Prereq: Senior status or permission. Special fee.

SW 714 - Alcohol: Use, Misuse, and Addiction

Credits: 4.00

This course examines a) historical, cultural, social aspects of alcohol, b) impact of alcohol on body and behavior, c) progression of drinking and the treatment and prevention of alcoholism, d) impact of addiction on families

SW 715 - Practice with Gay, Lesbian, Bisexual, and Transgender People

Credits: 4.00

Sexual minorities constitute the minority group social workers most consistently encounter wherever they work. Addresses practice with gay, lesbian, and bisexual people on both professional and personal levels for the social worker. The readings include theoretical, experimental, clinical, counseling, and personal perspectives, as well as providing an introduction to the gay/lesbian/bisexual subculture. A unit on gender minorities is included. Students are also required to explore and examine their own attitudes and assumptions about gays, lesbians, bisexuals, and gender minorities. Senior status only. (Also offered as SW 815.)

SW 785 - Study Abroad: Comparative Social Welfare Systems**Credits:** 4.00

Students examine the historical development of social welfare in another country including an analysis of the underlying values and attitudes that dictate practice and policy decisions. Includes agency site visits, lectures, themed readings, and visits to important cultural sites. Prereq: SW 424 and SW 525. Special fee.

SW 795 - Independent Study in Social Service**Credits:** 1.00 to 6.00

Independent work under department faculty guidance. Enrollment by permission only through arrangement with specific faculty. May be repeated with a different focus to maximum of 8 credits. Prereq: 12 hours social service coursework; permission. Cr/F. Special fee.

SW 796 - Independent Study: Teaching Assistantship**Credits:** 1.00 to 6.00

Participating students provide leadership and supervision for small groups of social work majors in social work practice simulations. Student teaching assistants work closely with, and under the direction of, department faculty. May be repeated to a maximum of 8 credits. Prereq: senior status; 16 hours in social work; and permission. Cr/F

SW 797H - Honors Thesis**Credits:** 2.00 to 4.00

Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq for 797H: admission to the SW honors program; permission. Prereq for 798H: satisfactory completion of 797H; permission. 6 credit maximum for both semesters.

SW 798H - Honors Thesis**Credits:** 2.00 to 4.00

Working with an assigned faculty adviser, students propose and develop a thesis project for both oral and written presentation before the end of the semester. Prereq for 797H: admission to the SW honors program; permission. Prereq for 798H: satisfactory completion of 797H; permission. 6 credit maximum for both semesters.

Sociology

SOC 400 - Introductory Sociology

Credits: 4.00

Overview of sociology as the scientific study of human social and cultural relationships. Social theory, methods and techniques of research, and current research findings on a wide range of social issues.

SOC 400H - Honors/Introductory Sociology

Credits: 4.00

See description for SOC 400. Writing intensive.

SOC 400W - Introductory Sociology

Credits: 4.00

See description for SOC 400. Writing intensive.

SOC 444 - Social Mobility and Social Change

Credits: 4.00

Uses a multidisciplinary perspective to examine the major social and economic trends that have affected American mobility patterns since the 1950s. The primary goal of the course is to help students ask and answer questions about the processes of social mobility and social change. Students learn how social scientists formulate research questions, how they collect and analyze data to answer those questions, and how their findings shape scholarly debates and public policy. Writing intensive.

SOC 444A - Society in the Arctic

Credits: 4.00

Introduction to societies of the far North today, from Alaska and Canada through Greenland, Iceland, northern Scandinavia and Russia. Reviews interconnected issues of social change, environment, sustainable development, local control, and modernization vs. traditions. Arctic dilemmas highlight some basic questions facing all societies in the 21st century. Writing intensive.

SOC 502 - Statistics

Credits: 4.00

Elementary applied statistical techniques; tables, graphs, cross-classifications; central tendency and dispersion; correlation and linear regression; confidence intervals and hypothesis testing. No credit for students who have completed ADM 430, BIOL 528, ADMN 420, EREC 525, HHS 540, MATH 439, MATH 539, MATH 644, PSYC 402, but petitions for acceptance of such courses to fulfill the sociology major requirement in statistics will be entertained.

SOC 502H - Honors/Statistics

Credits: 4.00

See description for SOC 502.

SOC 515 - Introductory Criminology

Credits: 4.00

Introduces the scientific study of crime. Reviews the different forms of criminal behavior, theories of crime, and strategies of crime control.

SOC 520 - Family

Credits: 4.00

Sociological study of marriage and the family in American society. Following a life-cycle approach, topics

include gender roles, communication and conflict, dating and mate selection, work and family economics, the transition to parenthood, middle- and late-life family, divorce, and remarriage.

SOC 520H - Honors/Family

Credits: 4.00

See description for SOC 520.

SOC 525 - Juvenile Crime and Delinquency

Credits: 4.00

Crime, violence, and the criminal justice system as it affects children and youth in the role of both perpetrators and victims.

SOC 530 - Race and Ethnic Relations

Credits: 4.00

Majority-minority group relations; special attention to nature and results of black-white and ethnic group relations in the United States.

SOC 530W - Race and Ethnic Relations

Credits: 4.00

See description for SOC 530. Writing intensive.

SOC 535 - Homicide

Credits: 4.00

Introduces to theory and research in homicide studies, including a review of the origins of and social responses to homicide.

SOC 540 - Social Problems

Credits: 4.00

Relation of customs and institutions to such social problems as crime, delinquency, alcoholism, physical and mental disease, sexual deviance, poverty, old age, broken families, and racial and religious prejudices. Especially for non-majors.

SOC 540W - Social Problems

Credits: 4.00

See description for SOC 540. Writing intensive.

SOC 565 - Environment and Society

Credits: 4.00

Environmental and Society focuses on the complex interactions between human communities and the natural world. The course considers the interconnected ways that social systems, the built environment, and related technologies produce environmental changes, and in turn how shifts in resources, air, water quality, climate, biodiversity, and ecosystems force societies to adapt.

SOC 570 - Sexual Behavior

Credits: 4.00

A comparative approach to questions of the universality and variability of human sexual behavior. Topics include the changing expression of sexuality at various stages of the life cycle, patterns of arousal and response for each sex, the social control of sexuality, and sexual dysfunctions.

SOC 595 - Independent Reading and Research

Credits: 2.00 to 8.00

Independent study of advanced or specialized topics in sociology requiring extensive reading and writing.

Before registering, students must develop a project in consultation with a faculty supervisor and submit a proposal to the undergraduate committee. Prereq: 12 sociology credits and permission.

SOC 597 - Special Topics

Credits: 4.00

Occasional or experimental offerings. May be repeated for different topics.

SOC 599 - Sociological Analysis

Credits: 4.00

Basic skills essential to sociological study, including: development of critical reading skills; evaluation of theory construction and evidence; analysis of classic and contemporary works, research, writing, and use of library resources. To be taken by sociology majors no later than the junior year. Writing intensive.

SOC 601 - Methods of Social Research

Credits: 4.00

Overview of major research methods: survey analysis, personal interview, participant observation, content analysis, and experimental design. Each student designs and completes a research project. Prereq: SOC 502 or equivalent and SOC 599; juniors and seniors only. Writing intensive.

SOC 611 - Sociological Theory

Credits: 4.00

Analysis of the origins and development of sociological theory. Includes the classical works of Marx, Weber, and Durkheim and their connections to the major strands of present day research. Writing intensive.

SOC 612 - Topics in Sociological Theory

Credits: 4.00

Major schools, concepts, and issues in present-day sociological theory. Functionalism, conflict theory, feminist theory, social constructionism, systems theory, critical theory, and hermeneutics are among the possible topics. Prereq: SOC 611. Writing intensive.

SOC 620 - Drugs and Society

Credits: 4.00

Provides students with an overview of drug using behavior as viewed from a sociological perspective. Highlights historical and current drug use trends, examines the social correlates of drug use, considers societal responses to drug use including treatment, prevention, and policy, and engages students in key controversial debates confronting U.S. citizens and policymakers. Provides a foundation for understanding of drugs and society.

SOC 630 - Sociology of Gender

Credits: 4.00

Gender examined as (1) socially constructed differences between the sexes, and (2) a system of social relations, which are part of the fabric of our social institutions. Topics include gender socialization, gender and education, gender and employment, and work-family intersections. Attention paid to the issue of gender inequalities and to the intersection of class, culture, race-ethnicity, age, and sexual orientation with gendered experience and gendered institutions. Focuses primarily on the contemporary United States.

SOC 635 - Medical Sociology

Credits: 4.00

Interrelationship of health, medicine, and society; the social construction of wellness, illness, and healing; age, sex, class, and ethnicity in medical care; institutional networks and the social control functions of medicine; roles and relations of physicians, patients, nurses, and other health workers; medicine in a cross-

national context. Writing intensive.

SOC 645 - Class, Status and Power

Credits: 4.00

Focuses on the major dimensions of inequality, including class, gender, and race, by exploring the distribution of economic, political, and social resources within contemporary societies.

SOC 645W - Class, Status and Power

Credits: 4.00

See description for SOC 645. Writing Intensive.

SOC 655 - Sociology of Law and Justice

Credits: 4.00

Systematic study of how social factors, such as inequality, differentiation, culture, and organization, influence the justice process. Historical and cross-cultural focus on the behavior of the police, courts, and other legal institutions. Prereq: SOC 515 or permission; juniors and seniors only.

SOC 660 - Urban Sociology

Credits: 4.00

Focuses on urban communities, urbanization, and urban social issues. Covers the historical development of cities; the differences between urban, suburban, and rural communities; urban life styles; and the significance of poverty and race for understanding contemporary American cities. Emphasizes American cities, with some consideration to world patterns of urbanization and the growth, development, and role of global cities. Writing intensive.

SOC 665 - Environmental Sociology

Credits: 4.00

Interactions between society and the physical environment, including environmental constraints, population and economic growth, social impacts of resource development, large-scale environmental change, and the social bases of environmental attitudes, behavior, and politics. Writing intensive.

SOC 670 - Sociology and Non-Fiction Film

Credits: 4.00

Examines nonfiction films as both a method of exploring social life and a cultural product that reflects its social environment. Among the topics to be addressed are the use of photographic images in social science research, the historical development of documentary film, and the critical analysis of visual images.

SOC 675 - Sociology of AIDS

Credits: 4.00

Seminar class addresses social, political, emotional, and bioethical dimensions of HIV infection and AIDS. Specific topics include the social epidemiology and etiology of AIDS, stigmatization and the social construction of disease, community action, AIDS prevention, and ethical issues in the health care of people with AIDS.

SOC 680 - Sociology of the Holocaust

Credits: 4.00

Examines the origins, realities, and consequences of the Holocaust as an all-embracing European phenomenon. Topics include the genocidal policies and procedures of the Nazis and Soviets with respect to indigenous populations as well as the role of collaborators. This course is normally offered only at UNH-Manchester.

SOC 680W - Sociology of the Holocaust

Credits: 4.00

See description for SOC 680. Writing intensive.

SOC 690 - Ethnographic Field Research

Credits: 4.00

Explores history, theory, and practice of ethnographic research. Students read and practice such techniques as mapping, taking life histories, compiling genealogies, and analyzing use of space, language, and rituals. Each student also carries out, writes, and presents an independent research project. Prereq: ANTH 411 or SOC 400; one 500-level or higher anthropology or sociology course; or permission. No credit for students who have completed ANTH 630. Writing intensive.

SOC 695 - Research on Family Violence in World Perspective

Credits: 4.00

The nature, frequency, causes, and consequences of family violence, including physical, verbal, material, and sexual abuse of children; of partners in dating, cohabitating, and marital relationships; and of the elderly; and also neglect of children and the elderly. Includes data analysis projects to provide experience with cross-national comparative research to test theories about social causes of family violence and the effects of family violence on society as a whole. Prereq: SOC 502 (or equivalent), SOC 601

SOC 697 - Special Topics

Credits: 4.00

Occasional or experimental offerings. May be repeated for different topics. Writing intensive.

SOC 699 - Senior Thesis

Credits: 4.00 or 8.00

Independent work in the library or field culminating in a written senior thesis. Recommended for, but not confined to, majors intending to pursue graduate studies. Students must arrange for supervision from two faculty members and submit a proposal to the Undergraduate Committee before registering. May be completed in one or two successive semesters during the senior year. Permission required. May be repeated up to a maximum of 8 credits.

SOC 699H - Senior Honors Thesis

Credits: 4.00 or 8.00

Independent work in the library or field culminating in a written senior honors thesis and a formal research presentation. Recommended for, but not confined to, majors intending to pursue graduate studies. Required for students participating in the departmental honors program as part of their 16 honors credits. Students must arrange for supervision from two faculty members and submit a proposal to the Undergraduate Committee before registering. May be completed in one or two successive semesters during the senior year. Permission required. May be repeated up to a maximum of 8 credits.

SOC 715 - Criminological Theory

Credits: 4.00

Introduces graduate students and advanced undergraduates to the major theoretical literature in crime and delinquency. Covers both classical and contemporary theory, with empirical assessments of theories, including macro- and micro-level control, strain, and learning theories, as well as recent developments in biosocial, deterrence, labeling, and critical/feminist theories. Prereq: SOC 502, 515; juniors and seniors only.

SOC 720 - Sociology of Drug Use

Credits: 4.00

Examines licit and illicit drug use from a sociological perspective. Draws primarily from the sociology of mental health and criminology to explore a variety of drug-related topics including historical and current

U.S. drug trends, dominant theoretical approaches about the initiation into, and continued use of drugs, drug-related crime, therapeutic use of drugs, prevention and treatment of drug problems, and drug-related policies.

SOC 725 - Social Demography

Credits: 4.00

Social demography examines the linkages between changes in the size, composition and distribution of the population and changes in social, environmental, economic and political factors. The course examines demographic methods and the materials and the analytical techniques used by demographers to analyze population redistribution, fertility, work, marriage, migration and mortality. The policy implications of demographic change will be examined with attention to the U.S. as well as the developed and developing world.

SOC 730 - Communities and the Environment

Credits: 4.00

People and the natural environments in which they live fundamentally structure communities around the globe. Economic change, expanding development, and human migration are transforming social and environmental conditions in both rural and urban settings, altering the identities of many communities as well as their relationships with the natural world. The importance of these emerging social and environmental issues has made them a focus for social science inquiry. This course exposes students to a range of sociological concepts, theories, and research approaches related to the study of communities and environmental issues. Some of the substantive themes that are covered include: population dynamics and environmental change; social capital and social networks; political economy and community development; collective action and social movements; science, technology, and environmental risks; and environmental racism and justice. The principal assignment for the course will be a research project where students investigate a community or environmental issue of their own interest.

SOC 735 - Sociology of Community

Credits: 4.00

This course analyzes "community" from a sociological perspective. Community is one of the fundamental concepts in the sociological literature; this course covers those aspects of the concept that are concerned with geographic communities: neighborhoods, communities, cities, etc. It considers how American communities have changed over time and what the current characteristics are, and how these characteristics are related to the "quality of life" in the communities. Students study theoretical and empirical approaches to studying communities, particularly but not exclusively American communities. Among specific areas of community research covered are: spatial inequality and concentrated poverty; what housing research shows about the importance of community to outcomes for families and children; the impact of community on health; and community development as a strategy for community change.

SOC 740 - Sociology of Mental Health

Credits: 4.00

Introduces students to different sociological approaches for studying and understanding mental health and illness. Students examine the social distribution of mental illness in the United States and the social-structural factors that help to explain mental health variations. Also addresses issues surrounding mental health treatment, systems, and policies for the mentally ill.

SOC 741 - Social Change and Development

Credits: 4.00

Examines theoretical and empirical work on social change and development, and explores on-the-ground efforts to alleviate poverty and stimulate equitable development. Reliance on key concepts of class, culture and politics; attention to the role of technology and the importance of the environment. Focuses on social change in America from 19th century to the modern post-WWII era and on change and development in

developing countries throughout the world. Permission required.

SOC 742 - Sociology and Social Policy

Credits: 4.00

Social policy and public policy defined: description of the policy making process. The political sociology of the policy-making process; who makes policy and who influences policy, under what conditions and with what effect. Definition of social policy research and the various roles social scientists can adopt for policy-relevant work. Students are responsible for critiquing the readings and for preparing a substantial research paper.

SOC 745 - Race, Ethnicity, and Inequality

Credits: 4.00

Sociological perspectives on race and ethnic relations for graduate and advanced undergraduate students. Topics include the creation of racial and ethnic identities, the nature and extent of segregation, education, employment, and wealth inequalities, and the effects of state policy. The course emphasizes both theoretical and empirical assessments. Prereq: SOC 530 or SOC 645, juniors and seniors only.

SOC #754 - Sociology of Religion

Credits: 4.00

Topics covered included religion's role in constructing social identities, feminism, sexuality, and the negotiation of traditional religious doctrine, religion and social capital, religious violence, and political and cultural conflict. The course will give particular attention to questions pertaining to religious authority and meaning, how religious traditions are contested and reinvigorated and how new religious/spiritual practices emerge.

SOC #760 - Aging and Late Life Family

Credits: 4.00

Using a life-course perspective, this course focuses on family relationships and social role transitions in later life. Addresses the impact of the empty-nest stage, grandparenting, retirement, care giving, and widowhood on the well-being and relationships of older people. Juniors and seniors only.

SOC #770 - Social Stress and Health

Credits: 4.00

Increases students' understanding of how the social environment affects the health and well-being of individuals. In particular, we examine how stress processes rooted in social structures and institutions to help to explain variations in mental health. The conceptualization and measurement of social stress, moderators and mediators in the stress process, and mental health outcomes will also be addressed.

SOC 773 - Sociology of Childhood

Credits: 4.00

Exposes students to a variety of sociological perspectives about childhood in American society. Stimulates analysis about how social institutions, like the modern family, school, economic system, justice system and communications media affect children. Assumes prior understanding of important sociological concepts, critical thinking skills and social science writing ability. Prereq: SOC 520 and permission. Writing intensive.

SOC 776 - Family Violence Research Seminar

Credits: 4.00

Analysis of abusive relationships within the family, especially physical and sexual abuse of children and spouses. Each student designs and conducts an empirical study to test a theory purporting to explain intra-family violence, the consequences of violence for families and society, or a study of what might prevent family violence. Permission required.

SOC 780 - Social Conflict**Credits:** 4.00

Analysis of the social conditions associated with the major forms of conflict management in human societies: discipline, rebellion, vengeance, negotiation, mediation, law, therapy, supernaturalism, and avoidance. Writing intensive.

SOC 792 - Research Internship**Credits:** 4.00

Designed for students who want some practical experience applying social research methods in a program or policy setting. Students meet weekly to discuss their experiences in the internship placement. Students design and carry out research in the placement settings. Placements are arranged by the student and faculty member. Examples include community development agencies, social services agencies, nonprofits, research centers and companies. Major report on the research undertaken is required. Prereq: SOC 502, 599, 601, permission.

SOC 793 - Internship**Credits:** 4.00

Provides upper level sociology majors with an opportunity to apply what they have learned in the classroom to the real world. Students meet weekly to discuss assigned readings, internship progress and semester project. Project ideas are developed with faculty and internship site supervisor. Prereq: junior or senior sociology majors.

SOC 794 - Evaluation of Social Programs**Credits:** 4.00

Evaluation research defined: purposes of evaluation, design of evaluation studies, setting of programs, utilization of evaluation results. Examination of case studies of evaluations of social programs. Students are responsible for designing an evaluation study in their chosen substantive area. Prereq: SOC 601.

SOC 797 - Special Topics**Credits:** 4.00

Occasional or experimental offerings. May be repeated for different topics. Writing intensive.

Spanish

SPAN 401 - Elementary Spanish I

Credits: 4.00

Conducted in Spanish. For students without previous knowledge of Spanish. Aural-oral practice, fundamental speech patterns, reading and writing to achieve a firm basis for an active command of Spanish. Lab. No credit toward a major. (No credit for students who have had two or more years of Spanish in secondary school; however, any such students whose studies of Spanish have been interrupted for a significant period of time should consult the chair about possibly receiving credit.) 401-402 taken together satisfies the foreign language requirement. Special fee.

SPAN 402 - Elementary Spanish II

Credits: 4.00

See description for SPAN 401. SPAN 401 is a prerequisite for this course. Cannot be taken separately without permission of instructor.

SPAN 403 - Review of Spanish

Credits: 4.00

Conducted in Spanish. Emphasizes aural/oral practice, reviews basic structure, reading and writing to develop active command of language. Preparation for Spanish 503. Designed for those who have had only two years of high school Spanish. Special fee. Does not satisfy the foreign language requirement.

SPAN 410 - Communicative Spanish for the Professions

Credits: 2.00

A skill-based course for students at the advanced beginner/low intermediate level who wish to focus on the Spanish language for use in relation to the health fields, business, law, tourism, and social services. Helps students develop a practical understanding of the Hispanic world through communicative activities in specific fields.

SPAN 500 - Selected Topics in World Literature

Credits: 4.00

Topics chosen that introduce students to major themes and genres. (Also offered as CLAS 500, FREN 500, GERM 500, ITAL 500, PORT 500, RUSS 500.) May be repeated for credit. Writing intensive.

SPAN 503 - Intermediate Spanish I

Credits: 4.00

Conducted in Spanish. Emphasizes the development of reading, writing, speaking, and listening skills. Review of grammar. Discussion and short papers in Spanish based on cultural and literary readings. Films. No credit toward the major. Special fee. Lab. Satisfies the foreign language requirement.

SPAN 503H - Honors/Intermediate Spanish I

Credits: 4.00

See description for SPAN 503.

SPAN 504 - Intermediate Spanish II

Credits: 4.00

See description for SPAN 503.

SPAN 504H - Honors/Intermediate Spanish II

Credits: 4.00

See description for SPAN 503H.

SPAN 525 - Spanish Civilization and Culture

Credits: 4.00

Historical, geographical, and artistic expressions of Spanish civilization that have formed the character of contemporary Spanish culture. Readings, slides, films, tapes, and records. Conducted in English. Majors must take either 525 or 526, but both may not be counted for major credit. Special fee.

SPAN 525H - Honors/Spanish Civilization and Culture

Credits: 4.00

See description for SPAN 525.

SPAN 526 - Latin American Civilization and Culture

Credits: 4.00

Significant historical, geographical, and artistic expressions of pre-Colombian and Latin American civilization. Readings, slides, films, tapes, records. Conducted in English. Majors must take either 525 or 526, but both may not be counted for major credit. Special fee.

SPAN 526H - Honors/Latin American Civilization and Culture

Credits: 4.00

See description for SPAN 526.

SPAN 595 - Practicum

Credits: 2.00

Practical use of Spanish language or cultural skills outside the classroom through special projects. Prereq: SPAN 504. May be repeated up to a maximum of 4 credits.

SPAN 631 - Advanced Conversation and Composition I

Credits: 4.00

To maintain and perfect written and spoken Spanish through intensive classroom work, individual conferences, and laboratory sessions. Discussion and frequent papers in Spanish based on cultural and literary readings, audiotapes, and videos. Prereq: SPAN 504 or equivalent. Special fee. Writing intensive. Satisfies the foreign language requirement.

SPAN 631H - Honors/Advanced Conversation and Composition I

Credits: 4.00

See description for SPAN 631. Writing Intensive.

SPAN 632 - Advanced Conversation and Composition II

Credits: 4.00

See description for SPAN 631. Writing intensive.

SPAN 632H - Honors/Advanced Conversation and Composition II

Credits: 4.00

See description for SPAN 632. Writing intensive.

SPAN 641 - Spanish Phonetics

Credits: 4.00

Practical application of fundamental phonetic theory to spoken Spanish. Required of Spanish majors. Special fee.

SPAN 645 - Intro to Spanish Linguistics

Credits: 4.00

This course is an introduction to Spanish linguistics and establishes the basis for future application of linguistic principles. The course explores different areas of linguistics including morphology, word formation and verbal inflection. Issues in syntax and semantics are analyzed both in isolation and in terms of their relationship to each other. Students will be equipped with the skills necessary to apply these linguistic concepts to actual Spanish language data and to achieve a better understanding of the structures governing the language they are studying. Prereq: SPAN 631 (or equivalent); SPAN 632 recommended; permission required.

SPAN 647 - Hispanic Cultural Studies**Credits: 4.00**

Contemporary approaches to the study of the cultures of Hispanic populations that examine the intersections of politics, art, religion and the forces of globalization. Prereq: SPAN 632 or equivalent.

SPAN 648 - Readings in Current Periodicals**Credits: 4.00**

Advanced practice in reading, speaking, and writing, based on current events in contemporary periodicals of the Spanish-speaking world. Pre- or Coreq: SPAN 632 or equivalent. Special fee.

SPAN 650 - Introduction to Critical Analysis**Credits: 4.00**

Methods and practice of literary criticism. Critical analysis of representative essays, fiction, poetry, and drama from Spain and Latin America. Frequent short papers. Required of Spanish majors; should be taken concurrently with or immediately following SPAN 632. Special fee. Writing intensive.

SPAN 651 - Introduction to Spanish Literature and Thought**Credits: 4.00**

Reading and analysis of major works within the historical, cultural, and social background of the Iberian peninsula. Papers, discussion, and examinations in Spanish. Prereq: SPAN 631, 632. May be taken concurrently with SPAN 632 with permission of adviser. Special fee. Writing intensive.

SPAN 652 - Introduction to Spanish Literature and Thought**Credits: 4.00**

See description for SPAN 651. Writing intensive.

SPAN 653 - Introduction to Latin American Literature and Thought**Credits: 4.00**

Reading and analysis of major works within the historical, cultural, and social background of the New World. Papers, discussion, and examinations in Spanish. Prereq: SPAN 631, 632. May be taken concurrently with SPAN 632 with permission of adviser. Special fee. Writing intensive.

SPAN 654 - Introduction to Latin American Literature and Thought**Credits: 4.00**

See description for SPAN 653. Writing intensive.

SPAN 681 - Summer Study Abroad in Mexico**Credits: 8.00**

Six-week summer immersion program for undergraduate students. (There are two sessions; one for home-stay and one for dorm). Special fee. Cr/F.

SPAN 685 - Study Abroad/Granada**Credits: 16.00**

Studies at a Spanish or Latin American university. Prereq: primarily for juniors and seniors who have passed SPAN 503-504 or equivalent with a grade of B (3.00) or better. Noncredit orientation meetings required during semester prior to departure. Interested students should consult with the program directors. Special fee. Cr/F. (An IA [continuous grading] grade will be assigned until official transcript is received from the foreign institution.)

SPAN 686 - Study Abroad

Credits: 16.00

See description for SPAN 685.

SPAN 733 - History of the Spanish Language

Credits: 4.00

Evolution of the Spanish language from the period of origins to the present. Special fee.

SPAN 756 - Modern Spanish Poetry

Credits: 4.00

Study of selected Spanish poets of the 18th, 19th, and 20th centuries in the context of historical, literary, and social currents of the time. Prereq: SPAN 652, 654, or equivalent. Special fee. Not offered every year.)

SPAN #771 - Latin American Drama

Credits: 4.00

Topic varies from year to year. Examples: 20th-century Latin American drama; Latin American one-act plays; Theater of protest in Latin America. Prereq: SPAN 650, 654, or equivalent. Special fee. (Not offered every year.)

SPAN 772 - Latin American Novel

Credits: 4.00

Development from romanticism to the present; contemporary trends and techniques. Prereq: SPAN 652, 654, or equivalent. Special fee. (Not offered every year.)

SPAN 774 - Major Latin American Authors

Credits: 4.00

Works and lives of selected writers; pertinent historical circumstances. Prereq: SPAN 652, 654, or equivalent. Special fee. (Not offered every year.)

SPAN 790 - Grammatical Structure of Spanish

Credits: 4.00

Overview of the grammatical structure of Spanish through in-depth analysis of both morphology and syntax, with emphasis on the meaningful contrasts within the Spanish language and the grammatical contrasts between Spanish and English. Special fee.

SPAN 795 - Independent Study

Credits: 1.00 to 4.00

Guided individual study with training in bibliography and organization of materials. Topics selected by instructor and student in conference. Barring duplication of content, may be repeated for credit. Prereq: permission of major supervisor.

SPAN 795K - Special Studies in Contemporary Latin American Literature

Credits: 2.00 or 4.00

SPAN 797 - Special Studies in Spanish Language and Literature

Credits: 4.00

A) History of the Spanish Language, B) Medieval Spanish Literature, C) Spanish Literature of the Renaissance, D) Spanish Literature of the Golden Age, E) Spanish Literature of the 18th and 19th Centuries, F) Spanish Literature of the 20th Century, G) Contemporary Spanish Literature, I) Latin American Literature of the 16th and 17th Centuries, J) Latin American Literature of the 18th and 19th Centuries, K) Latin American Literature of the 20th Century, M) Contemporary Latin American Literature, N) Structural and Applied Linguistics, O) Spanish Literary Criticism, P) Latin American Essay, Q) Latin America, S) Spanish Theatre, T) Spanish Poetry, U) Latin American Poetry, V) Galdos, W) Archetype Latin American Literature, X) Special Teaching Problems, Y) Spanish Civilization and Culture, Z) Latin American Civilization and Culture. Specialized courses covering topics not normally presented in regular course offerings. Prereq: permission of major supervisor. Special fee. Writing intensive.

SPAN 798 - Special Studies in Spanish Language and Literature

Credits: 4.00

A) Historic Minorities of the United States, B) Portuguese, C) Hispanic Film, D) Introduction to Hispanic Linguistics, E) Hispanic Dialectology, F) Other. Specialized courses covering topics not normally presented in regular course offerings. Barring duplication of content, topic F may be repeated for credit. Prereq: permission of major supervisor. Special fee.

SPAN 799 - Senior Honors

Credits: 4.00

For senior Spanish majors with a minimum cumulative grade-point average of 3.20 and the same or better average in the major who want to undertake a special honors project in an area of Spanish language or literature of their choice. Prereq: permission. Special fee.

Technology

TECH 400 - Introduction to CEPS Programs

Credits: 1.00

An overview of programs offered by the College of Engineering and Physical Sciences with an emphasis on skills needed to be successful academically, career opportunities and professional development.

Required course of all undeclared majors in CEPS. Cr/F.

TECH 564 - Fundamentals of CAD

Credits: 3.00

Fundamentals of CAD and computer-based graphics, including using CAD as a design tool to create engineering drawings. AutoCAD and Softdesk Civil software used to cover the following topics: drawing file storage and retrieval, display functions, basic drawing and editing commands, symbol libraries, plotting drawings on paper, and using parametric design features in the CAD system. Basic DOS familiarity is assumed. Prereq: civil engineering majors only. Special fee. Lab.

TECH 583 - Technology: Cultural Aspects

Credits: 4.00

Study of the requirements, limitations, benefits, and hazards that are constraints on the development of technological systems. Prereq: prior courses in physics or chemistry at high school level; sophomore or higher standing at UNH; not open to CHE, CIE, EE, or ME majors; permission.

TECH 583H - Honors/Technology: Cultural Aspects

Credits: 4.00

See description for TECH 583.

TECH 601 - Fundamentals Examination Review Course

Credits: 1.00

A ten-week review course for those interested in taking the fundamentals examination to be certified as an engineering-in-training (EIT). Cr/F.

TECH 685 - Budapest Program

Credits: 20.00

Enables students to pursue a semester of study at the Technical University of Budapest. For information, contact the Dean's Office, College of Engineering and Physical Sciences. Prereq: CEPS students only. Special fee. Cr/F.

TECH 696 - Independent Study

Credits: 1.00 to 4.00

Open to all qualified students pursuing studies that do not fall within existing departmental areas. Special fee when the topic is chemistry for engineers.

TECH 697 - CEPS Industrial Internship

Credits: 1.00

Students in the CEPS Industrial Internship Minor must register for TECH 697 during each semester (fall and spring) in which they are participating in their industry internship. Students in the minor must get permission for the minor advisor in order to register for this course. Special fee.

TECH 797 - Undergraduate Ocean Research Project

Credits: 2.00

Students work as members of interdisciplinary project teams on contemporary ocean-related problems under the guidance of a faculty adviser. Student team defines problem, prepares a budget, conducts literature surveys, engages in dialogue with experts in the community, deals with vendors, designs, and builds a working engineering model, gathers analyzes scientific data or conducts a comprehensive study, makes interim reports, and defends the results before a jury of experts. Prereq: normally senior standing and permission of the program director. A yearlong effort: 2 credits each semester, 4 credits total, an IA (continuous course) grade given at the end of the first semester. Writing intensive.

Theatre & Dance

THDA 435 - Introduction to Theatre

Credits: 4.00

Introduces all aspects of theatrical production: play writing, acting, directing, design, technical theatre and construction, and theatre management. Cultural and social context of theatre in our time and through the ages. Introduces major classical and modern types of theatre. Selected plays are read and discussed, and attendance at theatrical production is required. Special fee.

THDA 436 - History of Theatre I

Credits: 4.00

The history of theatre and its drama is introduced through close study of the world's greatest plays from the Greeks through the end of the 17th century -- How these plays were performed then, how they are performed now, their political, social, and cultural urgencies.

THDA 436H - Honors/History of Theatre I

Credits: 4.00

See description for THDA 436. Writing intensive.

THDA 438 - History of Theatre II

Credits: 4.00

The history of theatre and its drama is introduced through close study of the world's greatest plays of the 19th, 20th, and 21st centuries -- How these plays were performed then, how they are performed now, their political, social and cultural urgencies.

THDA 438H - Honors/History of Theatre II

Credits: 4.00

See description for THDA 438. Writing intensive.

THDA 440 - Exploring Musical Theatre

Credits: 4.00

This is an introductory course designed to enhance the student's enjoyment and understanding of musical theatre. Course content and internet exploration as well as play attendance are designed to acquaint students with and nurture an appreciation for musical theatre. This course is intended for introductory students of all majors who are interested in studying musical theatre elements, styles, and significance.

THDA 442 - Introduction to the Art of Acting

Credits: 4.00

Designed for non-THDA major students interested in the art of acting. Students broaden and deepen their own creativity, gain a deeper understanding of human behavior and interaction, and strengthen analytical skills through class work and projects. Focuses on the basic skills of acting: the ability to effectively communicate, to gain access to the full spectrum of human emotions, and increase spontaneity. Important innovators and theorists in the field of theatre and acting are covered, such as Sanford Meisner, Constantine Stanislavski, Bertolt Brecht, Jerzy Grotowsky, Augusto Boal, and Jacques Lacoq. Additional topics include contemporary plays and playwrights, an historical perspective of the art of acting, and the current state of live theatrical performance.

THDA 444 - Dramatic Impact: Theatre and Socio-political Change

Credits: 4.00

This course that will examine to what degree dramatic literature and theatre art has effected socio-political change in the past, and in the present, through an in-depth exploration of texts, artistic methods and theatrical techniques. Students will create theatrical art related to various sociopolitical issues. Absolutely no experience in theatre is necessary, as this course is built around the premise that we all have the ability to create art and affect politics and society. Special fee.

THDA 444A - What's Old Becomes New: Threading Theatrical Themes into Societal Truths

Credits: 4.00

To what degree does updating theatrical themes contribute to societal norms and relevant commentary? This course will examine how enduring dramatic ideas evolve by comparing plays that are written in reaction to or as an extension of a provocative piece, both carrying on similar themes but told in updated ways. Students also will investigate the role these adaptations play in theatre history, why they are done and whether they are justified as quality art.

THDA 450 - History of Musical Theatre in America

Credits: 4.00

Study of the development of the musical and its relationship to American social history.

THDA 458 - Costume Construction

Credits: 4.00

Study and development of costuming techniques, including hand and machine sewing, pattern drafting, alterations, and fabric manipulation. Emphasis on demonstrated understanding. Special fee.

THDA 459 - Stagecraft

Credits: 4.00

Elements of play production: basic building components, tools, and materials for producing the scenery; equipment and shop layouts supporting all of the areas of the set, lighting, and costume designs; and consideration of various stage spaces and theatrical venues. Practical application on University theatre productions. Special fee. Lab.

THDA #461 - Modern Dance I

Credits: 4.00

Introductory course that includes techniques and improvisation as well as lectures in history and theory. (Also listed as KIN 604.)

THDA 462 - Ballet I

Credits: 4.00

Introductory course: technique, historical development of ballet. Students who have had several years of ballet are expected to register for THDA 562 or 662. Instructor determines appropriate level. Not open to seniors.

THDA 463 - Theatre Dance I

Credits: 4.00

Introductory course: techniques; improvisation; lectures on jazz, ethnic, and other theatrical dance forms. Students with prior experience are expected to register for THDA 563 or 663. Instructor determines appropriate level. Not open to seniors. Special fee.

THDA 470 - Movement and Vocal Production

Credits: 4.00

Expansion of the student's vocal and physical/kinesthetic awareness, utilizing basic theories and lessons of Lessac, Laban, and Alexander. Text exploration is supplemented with exercises from Berry. Permission required. Special fee.

THDA 475 - Stage Makeup**Credits:** 2.00

Fundamentals of juvenile, old age, character, and special stage makeup techniques. Special fee.

THDA 487 - Dance**Credits:** 4.00

Historical and philosophical consideration of dance trends. Not a performance course.

THDA 520 - Creative Drama**Credits:** 4.00

Drama techniques leading to the design and execution of drama sessions with children. Includes role-playing, improvisation, and story dramatization. Lab.

THDA 532 - London Experience**Credits:** 2.00

Exploration of the culture and history of London while enhancing study of live theatre prior to active study in the country. May be repeated to a maximum of 4 credits. IA (continuous grading).

THDA 541 - Art and Theatre Administration**Credits:** 4.00

Administration practices applied to arts, music, and theatre management. Fund raising, public relations, business and box office management, audience development and long range planning.

THDA 546 - Costume Design for the Theatre**Credits:** 4.00

How to design costumes for the theatre, not figure drawing, although drawing techniques are taught. Script analysis and research and presentational techniques for costume design explored and implemented. Special fee.

THDA 547 - Stage Properties**Credits:** 4.00

Research and manufacture of period and modern stage, trim, and hand properties. Prereq: THDA 459. Special fee.

THDA 548 - Stage Lighting Design and Execution**Credits:** 4.00

Script analysis, the light plot, and instrument schedule, including cue-writing, color, instrumentation, and the mechanics of developing a functional design. Special fee.

THDA 550 - Actor's Voice Through Text**Credits:** 4.00

Continuing development of the actor's techniques for creating increased vocal expressiveness. Addresses the methods of varying vocal style and presentation through in-depth analysis and interpretation of the text. Prereq: THDA 470.

THDA 551 - Acting I**Credits:** 4.00

Development of fundamental vocal and physical stage techniques for actors and directors through exercises, improvisation and theatre games. Special fee.

THDA 552 - Acting II**Credits:** 4.00

Focuses on strengthening the actor's ability to achieve a higher level of truth, presence, and spontaneity on stage. Building on the approach devised by Sanford Meisner, this highly intensive class creates a bridge to connect these developing skills to various forms of text. Prereq: THDA 551. Special fee.

THDA 555 - Musical Theatre I

Credits: 4.00

Foundations of solo musical theatre performance, including the development of the speaking and singing voice, stage movement, and character analysis explored through exercises, improvisation, theatre games, in-class performance, and written assignments. Lab. Special fee.

THDA 562 - Ballet II

Credits: 2.00

Extension of ballet I syllabus; emphasis is on technique, with additional step vocabulary. May be repeated once for credit. Prereq: THDA 462 or permission.

THDA 563 - Theatre Dance II

Credits: 2.00

Technique; African-Cuban, modern, and East Indian dance; body movement through exercise and combinations involving stretch, strength, and flexibility. May be repeated for a maximum 16 credits. Prereq: THDA 463 or permission. Special fee.

THDA 576 - Pointe

Credits: 2.00

Intermediate course in the art of dancing on pointe. Focus on technique involved in gaining strength and on methodology for understanding the art of the ballerina.

THDA 583 - Introduction to Puppetry

Credits: 4.00

Introduces the art of puppetry for general appreciation, entertainment, application in the classroom, and as a therapeutic tool. Emphasis on constructing a variety of puppets (e.g., hand, rod, shadow, and scarf) and adapting literary sources for scripts and performance. (Not open to seniors.) Special fee.

THDA 592A - Special Topics

Credits: 1.00 to 4.00

Special topics, projects in theatre and dance. Content varies according to needs and interests of students and faculty. Course descriptions are available in department office. May be repeated for credit.

THDA 597 - Dance Theatre Performance

Credits: 2.00

Designed for students participating in UNH Dance Theatre Company. Skill development through rehearsal and actual performance experience. May be repeated for a maximum of 16 credits.

THDA 622 - Storytelling, Story Theatre, and Involvement Dramatics

Credits: 4.00

Students actively develop storytelling techniques based on individual needs. Includes an examination of story theatre and involvement styles and the development of the ensemble. Special fee.

THDA 624 - Theatre for Young Audiences

Credits: 4.00

Introduces coaching and directing techniques for classical and contemporary acting styles in theatre for young audiences. Historical contents leads into practical exploration of actor training and coaching, production and design, choreography, and business management for theatre and for youth programs.

Students develop teaching strategies for young performers and participate in a culminating project. Prereq: THDA 551 and THDA 436 or THDA 438. Special fee.

THDA #624B - Theatre for Young Audiences/Directing

Credits: 4.00

Introduces to every aspect of theatre production for young audiences. A brief historical context leads into practical exploration of directing, research, playwriting, design, actor training, choreography, production, and business management for theatre for youth programs. Students develop teaching strategies for young performers and participate in a culminating performance. Prereq: THDA 436 or THDA 438. Special fee.

THDA 632 - Interpretation of Shakespeare in Theatre

Credits: 4.00

Increases understanding of Shakespeare's language and action, and improves ability to speak his verse and prose with clarity and verve. Students achieve insights into Shakespeare's plays through the medium of performance. Weekly oral and written assignments. Prereq: THDA 551 and THDA 552; or permission of instructor.

THDA 633 - Dance Composition

Credits: 4.00

Practical, developmental approach to process of creating dances. Prereq: THDA 561; 562; 563;/or permission. Special fee.

THDA 638 - American Theatre: 1920-1970

Credits: 4.00

A survey of American plays from O'Neill onward. Students read and analyze two plays a week. Oral, written, and theatrical assignments. Prereq: (one of the following) THDA 436, THDA 438, THDA 450 or permission of the instructor.

THDA 641 - Stage Management

Credits: 2.00

Introduces to the concepts and skills needed for stage management. Stage managers perform a central role in the theatrical production, coordinating artistic and technical elements. They need a thorough understanding of the script, strong management skills, and a solid background in all aspects of the theatre. Prepares students to function as a stage manager in productions at any theatre. Prereq: (one of the following) THDA 459; 551; 597; 655; or 741. Special fee.

THDA #650 - Scene Painting for the Theatre

Credits: 2.00

Scene painting analyzed. Techniques and media to create a larger-than-life approach to scale, equipment for conversion, and appropriate stylistic techniques for enlargement reviewed. Employs basic painting techniques and methods of paint application, but scale conversion technique extend the training of easel painters. Prereq: THDA 459.

THDA #651 - Rendering for the Theatre

Credits: 2.00

Theatrical rendering is a presentational arrangement of given items in perspective appropriate to a set or in a costume at a frozen moment during the production, indicating appropriate mood, atmosphere, and depth. For the theatre, this is generally done in watercolor, but many other media are possible and are explored. Prereq: THDA 459.

THDA 652 - Scene Design

Credits: 4.00

Scene design from script to finished design. Both aesthetic and practical viewpoints considered. Emphasis on presentational techniques: study of perspective and finished rendering. Prereq: THDA 459.

THDA 653A - Performance Project

Credits: 2.00

Application of prior coursework to a formal theatre production or to an individual performance or teaching project. Substantial written work is factored into the final grade. May be repeated for up to 8 credits. Writing intensive.

THDA 653B - Performance Project/Musical Theatre

Credits: 2.00

Application of prior coursework to a formal theatre production or to an individual performance or teaching project related to Musical Theatre. Substantial written work is factored into the final grade. May be repeated. Special fee. Writing intensive.

THDA 654 - Scenic Arts Project

Credits: 2.00

Application of prior coursework to a formal theatre production or to an individual performance or teaching project. Substantial written work is factored into the final grade. May be repeated up to a maximum of 8 credits. Writing intensive.

THDA 655 - Musical Theatre II

Credits: 4.00

Builds on and expands the techniques learned in Solo Musical Theatre I, with a special emphasis on partner work and scene study. Prereq: THDA 555 or permission of instructor. Special fee.

THDA 656 - Musical Theatre III

Credits: 4.00

Focus on musical theatre repertoire and auditioning techniques. Students read and analyze texts and scores from the 20th century musical theatre and integrate this knowledge with performance techniques learned in Musical Theatre Performance I and II in order to develop a body of audition skills and repertoire. Students learn through written analysis, theatre games and improvisations, and in-class auditions and performances. Prereq: THDA 555, 655 or permission of instructor. Special fee.

THDA 657 - Play Reading

Credits: 4.00

A high-volume reading course that introduces a breadth of dramatic literature from ancient times to the present. Reading lists vary according to interests and needs of students. Students read and analyze three plays/week.

THDA 662 - Ballet III

Credits: 2.00

Advanced-level course in technique; pointe work included. May be repeated for a maximum of 16 credits. Prereq: THDA 562 or permission.

THDA 663 - Theatre Dance III

Credits: 2.00

Extension of Theatre Dance I and II; brings students to a more advanced technical level. May be repeated for a maximum of 16 credits. Prereq: Theatre Dance II. Special fee

THDA 665 - Aerial Dance

Credits: 2.00

The study of aerial arts including two and one point trapeze and fabric. May be repeated for a maximum of 16 credits. Prereq: THDA 662 or 663. Permission required.

THDA 670 - Dialects

Credits: 4.00

Study and practice in basic dialect acquisition for performers. Prereq: THDA 470, 551. Permission required. Special fee.

THDA 683 - Advanced Puppetry

Credits: 4.00

In-depth study of the theory and practice of puppetry for the advanced student. Students develop skills in manipulation and construction of selected puppet forms and apply these skills in performance. Examines historical perspectives and the application of puppetry in the classroom and as a therapeutic tool. Prereq: THDA 583 or permission. Special fee.

THDA 684 - Special Topics

Credits: 2.00 to 4.00

Exploration of topics agreed upon by students and instructor. Topics vary. May be repeated.

THDA 689 - Practicum

Credits: 1.00

The practicum ensures a breadth of experience in the major. Students should register for a different topic each semester during the sophomore and junior years. A) technical, B) costumes, C) performance, D) promotion and marketing. May be repeated for up to 6 credits. Cr/F.

THDA 691 - Internship

Credits: 2.00 to 8.00

Fieldwork with a regional or touring theatre. This advanced level internship allows the student to experience a professional theatre setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. A written report is required. May be part- or full-time with credits assigned accordingly. Permission required. Student must also register for a graded 4-credit independent study. May be repeated up to a maximum of 12 credits. Cr/F.

THDA 721 - Education through Dramatization

Credits: 4.00

An advanced course that is paired with Methods of Teaching Theatre. Provides in-depth study and practice of integrated arts lessons in K-12 school curricula. Prereq: THDA 520. Special fee. Writing intensive.

THDA 727 - Methods of Teaching Theatre

Credits: 2.00 to 4.00

The capstone of the theatre education major's studies. Designed for students who are preparing to enter student teaching. Provides practical information, skills, and lesson plans that theatre teachers use as source material for the secondary classroom. Covers a wide range of teaching models. Students define and articulate a personal teaching philosophy, write comprehensive semester curricula and course syllabi, and create an extracurricular program plan and philosophy. Prereq: THDA 520. Special fee. Writing intensive.

THDA 729 - Community Oriented Drama Programs

Credits: 1.00 to 4.00

Advanced practicum in designing, developing, and producing drama programs for the school and community. Includes audience analysis and marketing skills as well as adapting spaces, soliciting volunteers, and working with a limited budget. May be repeated to a maximum of 12 credits.

THDA 732 - Choreography

Credits: 4.00

Theoretical and practical consideration of the creative and aesthetic aspects of ballet, modern, and theatre dance. Prereq: THDA 633. Special fee.

THDA 741 - Directing

Credits: 4.00

A process oriented approach to the art of stage directing. The course begins with an in-depth focus on script analysis. Students then develop their skills as the "master storyteller" through imagination, interpretation, communication, and style. Prereq: THDA 551 and THDA 552. Special fee.

THDA 742 - Directing II

Credits: 4.00

In-depth study of the theory and practice of stage direction for the advanced student. Builds on 741, Directing. Students strengthen and expand their existing knowledge of the subject area. Exploration focuses on three areas of directorial communication: application to periods and styles, exploration of avant-garde theory, and directorial technique. Concludes with a major project mounted for public performance. Prereq: THDA 741. Special fee.

THDA 750 - Writing for Performance

Credits: 4.00

An intensive exploration of the playwright's process. A mixture of theory and creative writing. Students incorporate the fundamentals of creating a script in a step-by-step process from monologues and scenes to the completion of a one-act play. Though the focus of the course is on writing for the stage, the process is applicable to screen and teleplay writing. Special fee. (Not offered every year.) Writing intensive.

THDA 755 - Advanced Musical Theatre

Credits: 4.00

Students learn to integrate and expand on techniques explored in Musical Theatre I, II, and III. Special focus given to research, discussion, analysis, and performance of topics and techniques required for work in the professional theatre. Prereq: THDA 555, 655, 656 or permission of instructor. Special fee.

THDA 756 - Producing and Directing the Musical

Credits: 4.00

Focuses on analyzing musical scripts/scores from the viewpoint of the producer and the director. Learning is theoretical and performance-based. Prereq: THDA 555. Special fee.

THDA 758 - Acting III

Credits: 4.00

Applies the principles and techniques acquired by students in THDA 551 and THDA 552 to various genres, such as epic and absurdist, and to mediums such as television and film. Special attention is given to characterization beyond the student's standard range and the development of the actor as a creative artist, using the techniques of such methodologists as Lecoq, Laban, and Grotowski. Prereq: THDA 551 and THDA 552. Special fee.

THDA 759 - Acting: Period and Style

Credits: 4.00

Techniques of style analysis and period research. For the first time in the students' undergraduate actor training, students synthesize their basic actor training with the heightened language and archetypal characterization inherent in the classical theatre of the ancient Greeks, the Commedia d'Elle Arte, the Renaissance, the Neoclassical period, and the Restoration period. Prereq: THDA 470, 551, 552; one semester of THDA 436 or THDA 438, or permission. Special fee.

THDA 760 - Teacher Planning for Theatre

Credits: 4.00

Focuses on lesson and unit planning for the areas of high school theatre history, play analysis, and play writing. Students will practice various methods of teaching these areas of drama. Prereq: THDA 436 and THDA 438.

THDA 762 - Women in 20th and 21st Century American Theatre

Credits: 4.00

A high-volume reading course which introduces a sampling of American female playwrights starting with the 20th century. Focus is on the evolution of female theatre artists and how roles of women are portrayed in various dramatic works. Reading lists may vary according to the interests and needs of students. Students read and analyze two to three plays/week. Prereq: THDA 436, 438, 450 or a History Gen. Ed., or permission of instructor.

THDA 781 - Short Courses for Teachers and Directors

Credits: 3.00 or 4.00

Each of these intensive short courses for elementary, middle, and high school teachers focuses on expanding production skills and methods of implementing theatre and dance techniques in the classroom. Topics may include puppetry, storytelling, play production for the elementary and middle school teacher; makeup; performing the musical with elementary and middle school students; play production for middle school and high school teacher; basic choreography for the school musical; script adaptation; the use of drama to enhance reading and writing; set and lighting design; and design and construction techniques; teaching/directing Shakespeare; theatre pedagogy/advanced methods of teaching theatre; analysis and research; putting arts in the classroom; and integrated arts. Continuing education and professional development is also available for graduate education credit. (Also offered as EDUC 998.) Special fee. May be repeated.

THDA 786 - Dance Pedagogy

Credits: 4.00

Methods course that focuses on the art and science of teaching the movement forms of ballet, modern, jazz and tap. Designed to prepare students who are seeking dance certification with a M.Ed. or a M.A.T., or who wish to open their own studio. Provides background into the nature of teaching, standards that make up good teaching, awareness of National/State standards, and study and practice of lesson plans in K-12 school curricula or private studios. Prereq: THDA 462 and THDA 562, or THDA 463 and THDA 563, or permission of the instructor.

THDA 791 - Internship in Theatre and Dance

Credits: 2.00 to 8.00

Fieldwork with a regional or touring theatre or with a theatre education program. This advanced-level internship allows the student to experience a professional theatre/theatre education setting prior to graduation. Normally supervised by a qualified theatre professional, with frequent consultation with a faculty sponsor. Written report required. May be part- or full-time with credits assigned accordingly. Permission required. May be repeated up to a maximum of 12 credits.

THDA 795 - Independent Study

Credits: 1.00 to 8.00

Advanced individual study. Specific independent study opportunities are sometimes posted in the Theatre and Dance Department Office. Project, which includes a substantial piece of writing, must be developed with supervising instructor. May be repeated up to a maximum of 8 credits.

THDA 795W - Independent Study

Credits: 1.00 to 8.00

Writing intensive.

THDA 796 - Independent Study

Credits: 1.00 to 8.00

See description for THDA 795.

THDA 796W - Independent Study

Credits: 1.00 to 8.00

See description for THDA 795. Writing intensive.

THDA 798 - Senior Thesis

Credits: 2.00

Supervised research leading to the presentation of a major research paper. Prereq: permission, majors only, senior standing. Writing intensive.

THDA 798H - Honors Senior Thesis

Credits: 4.00

Supervised research leading to the presentation of a major research paper; the resulting paper is defended in an oral presentation before department faculty. Required for graduation from the honors program in Theatre and Dance. Prereq: permission, majors only, and senior standing. Writing intensive.

THDA 799 - Capstone Project

Credits: 2.00 or 4.00

This required course incorporates and tests the knowledge that majors have learned over their careers in the Department of Theatre and Dance. Capstone experiences are tailored to each student through conference with their adviser in their specific Theatre and Dance track. Writing intensive.

THDA 799H - Honors/Capstone Project

Credits: 4.00

See description for THDA 799. Writing intensive.

Tourism

TOUR 400 - Introduction to Tourism

Credits: 4.00

Provides an informational foundation in tourism and gives a more extensive knowledge of the tourism industry. Examines historical perspectives, tourism organization, and supply and demand of the tourism industry. Discusses the dynamic and pluralistic nature of the tourism industry. Writing intensive.

TOUR 510 - Tourism and Global Understanding

Credits: 4.00

Introduces ways in which tourism can act as a vehicle to understanding foreign cultures. Responsible tourism, has the potential to help bridge cultural and psychological distances that separate people of different races, religions, and socio-economic classes. Through responsible tourism we can learn to appreciate, trust, and respect the human diversity that our world has to offer. Helps students gain an informed acquaintance with other cultures and customs, and to understand the central role of tourism in international and cross-cultural understanding. Cr/F option.

TOUR 560 - Special Topics

Credits: 4.00

A) Heritage Tourism Planning, B) Rural Tourism Development. Prereq: TOUR 400. May be repeated.

TOUR 560H - Honors/Special Topics

Credits: 4.00

See description for TOUR 560.

TOUR 615 - Tourism Planning and Development

Credits: 4.00

The planning and development of tourist resources and programs within a geographic region. Planning models are reviewed and analyzed. The relationship among tourists, tourist developments, and the planning of tourist attractions and services is examined. A strategic planning process is applied to the development of a regional tourism plan in New Hampshire. Prereq: TOUR 400.

TOUR 633 - Economics of Travel and Tourism

Credits: 4.00

Provides an understanding of both the microeconomic and macroeconomic aspects of travel and tourism. Using economics as a theory base, the course attempts to identify what is significant or special about travel and tourism compared with other activities. Special attention is given to issues such as resource immobility, capacity constraints, seasonality, and consumers' inability to experience the product before purchase. Prereq: EREC 411. (Also offered as EREC 633.)

TOUR 700 - Marketing Communications Research: Methodological Foundations

Credits: 4.00

Concepts, tools, and techniques to facilitate accurate product, service, and idea marketing communications. Specific application to tourism and economic/community development initiatives are included. Prereq: Basic statistics course or permission.

TOUR 705 - Ecotourism: Managing for the Environment

Credits: 4.00

Ecotourism embraces both the environment and economics. Provides a comprehensive framework for

planning and managing ecotourism in order to both maximize potential benefits and minimize potential costs for people and the environment. Seminar format. Case studies used to assess the role of ecotourism in the sustainable development of natural resources. Prereq: TOUR 400, juniors or seniors only

TOUR 767 - Social Impact Assessment

Credits: 4.00

Provides a cross-disciplinary perspective on the issues, problems, and methods of Social Impact Assessment (SIA). Provides analytic approach and theoretical framework for the assessment of diverse events, including changes in the natural environment, the local economy, or dominant technology. SIA is required of most U.S. and Canadian federal- and state-sponsored projects that come under the National Environmental Protection Act, as well as all projects funded by international donor agencies. (Juniors and seniors only.) Writing intensive.

TOUR 792 - International Experience

Credits: 1.00 to 4.00

Travel to foreign country for study of a specific topic to be approved by the student's major adviser. Prereq: permission.

TOUR 794 - Internship

Credits: 4.00 to 12.00

Fieldwork brings students in a full-time, 15-week (600 hours) supervised situation where they have an opportunity to achieve a synthesis, transfer, and application of the academic experience in a setting similar to that associated with professional employment. Prereq: permission. May be repeated up to a maximum of 12 credits.

TOUR 798 - Independent Study

Credits: 1.00 to 4.00

Special assignments in readings, investigations, field problems. May include teaching experience. Prereq: permission.

TOUR 798W - Independent Study

Credits: 1.00 to 4.00

See description for TOUR 798. Writing intensive.

TSAS Communication

COM 209 - Expository Writing and Reading

Credits: 4.00

Weekly writing and individual conferences. Frequent reading assignments related to the writing. 3 lec/1 tutorial.

COM 210 - Public Speaking

Credits: 2.00

Frequent speaking exercises to develop the skill and confidence to speak in a variety of public situations. 2 lec.

COM 211 - Critical Reading

Credits: 2.00

Frequent readings of short nonfiction and fiction. Class discussions and writing assignments designed to develop skill in reading with critical discernment. 2 lec.

COM 212 - Technical Writing

Credits: 2.00

Practice in various forms of technical writing: technical instructions and descriptions, reports, proposals, business letters, and more, with particular emphasis on the importance of layout and design. 2 lec.

COM 291 - Studies in Communications

Credits: 1.00 to 3.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research or scholarly endeavor is to explore new areas in the student's field of study or to pursue course materials in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include the art of persuasive speaking, writing, literature, or technical reporting. Permission required.

COM 292 - Studies in Communications

Credits: 1.00 to 3.00

See description for COM 291.

TSAS Mathematics

MTH 201 - Math I

Credits: 3.00

Arithmetic of whole numbers, integers, decimals, percents, and fractions. Applications of mathematics, measurement and the metric system. Probability, problem solving and business graphing. 3 lec.

MTH 202 - Math II

Credits: 3.00

Creative reasoning and problem solving. Algebraic topics, powers, roots, equations, ratios, and proportions. Geometry topics, triangles, similar figures, polygons, measurement (English and Metric), linear functions, business functions and graphing. Prereq: pass a pretest. 3 lec.

MTH 203 - Algebra and Trigonometry

Credits: 3.00

Basic algebra topics, radicals, exponents, introduction to functions and graphs, simple applications of algebra. Trigonometric functions of angles; applications of right triangles, identities, and equations. 3 lec.

TSAS Social Science

SSCI 201 - Human Relations

Credits: 4.00

Learn theories of human behavior and develop skills for applying these concepts in the creation of more effective interpersonal and professional relationships.

SSCI 202 - Social Issues

Credits: 4.00

Study of social problems in today's world. Particular emphasis on various viewpoints of their causes and solutions. Issues covered range from individual to worldwide

SSCI 203 - Environmental Issues and Society

Credits: 2.00

Course focuses on contemporary environmental problems and their relationship to society. Students examine the nature and extent of specific problems, such as pollution or global warming, and review current thinking about causes, possible interrelationships, and proposed solutions. 2 lec.

SSCI 204 - Leadership Effectiveness and Group Performance

Credits: 2.00

By studying various theories of group development and leadership approaches, students explore the ways leaders influence group behavior and goal attainment. Students practice applying theories to specific situations and explore their own individual strengths and weaknesses as both leaders and group members.

SSCI 291 - Studies

Credits: 1.00 to 4.00

Students who have the ability and adequate preparation to work independently may propose a contract to design a course or research project on a topic not available through existing course offerings. The purpose of this research is to explore new areas in the student's field of study or to pursue course material in greater depth. Work is supervised by an appropriate faculty/staff member and credit varies depending on the proposed project/research. Areas may include a specific social science topic. Course may be repeated up to a maximum of 8 credits.

SSCI 292 - Studies

Credits: 1.00 to 4.00

See description for SSCI 291.

Women's Studies

WS 401 - Introduction to Women's Studies

Credits: 4.00

Interdisciplinary survey of the major areas of women's studies: women's history, cross-cultural perspectives, women in literature, psychology of women, etc. Basic principles and concepts fundamental to more advanced women's studies research. Topics vary. Required for major and minor. Writing intensive.

WS 401H - Honors/Introduction to Women's Studies

Credits: 4.00

See description for WS 401. Writing intensive.

WS 405 - Gender, Power and Privilege

Credits: 4.00

This course explores the diversity of women's lives through the dynamics of status, power, privilege, and inequality in contemporary United States. Students will examine women's diverse experiences by using the theoretical framework of the social construction of race, gender, economic class, and sexual orientation in historical context. We will examine categories of difference and the processes, philosophical developments, institutions, and conditions that lead to and rely on power and privilege in modern American society.

WS 444 - Trans/Forming Gender

Credits: 4.00

Using a social construction approach, students explore the multiple ways in which gender is constructed within the lives of children, women, men, and transgender people. Specific attention focuses on the social institutions and systems that encourage both the construction and reproduction of gender identity and expression across the lifespan. Students actively participate in identifying historical and current day factors and institutions that shape gender. Students explore the roles of families, schools, educational settings, media, the workplace, recreation activities, the medical system, religion, laws, and the laws and the legal system in the construction of gender.

WS 444A - Race Matters

Credits: 4.00

Class examines race categories in the United States and how these historically changing categories shape our diverse realities across racial, ethnic, gendered, classed, and national identities. Students examine race as a category of difference and explore the multiple ways that individuals claim racial identities. Specific attention focuses on how diverse women have made history in their own lives and in the lives of others by resisting the interlocking systems of oppression.

WS 444B - Score!: Gender and Diversity in Sports

Credits: 4.00

Utilizing guest lectures, films, readings, projects and discussion, this writing intensive course provides first-year students with the opportunity to investigate the social, historic, economic and political factors that shape sports opportunities for girls and women in the United States. Students examine the extent to which sports experiences are the same for all girls and women in their diversity, as well as comparable to males across their differences. Writing intensive.

WS 444C - On the Roads to Equality

Credits: 4.00

Looking beyond what is traditionally thought of as the women's rights movement in the United States, this course remaps women's history and activism to include a diversity of women's experiences. A multicultural examination of history focuses on women's leadership and participation in immigrant rights, labor, the Black Women's Club, economic justice, reproductive rights, self determination and feminist movements during the 19th and early 20th centuries. Writing intensive.

WS 444D - Cyborgs, Avatars, and Feminists: Gender in the Virtual World

Credits: 4.00

Utilizing feminist theoretical and critical investigations of gender and techno culture, students explore women's popular and theoretical conceptions of cyberspace. Students explore numerous digital communication systems within cyberspace and examine how and why a diversity of women utilize these systems. This course provides students with the opportunity to investigate the impact that advancements in virtual technology have in the lives of women.

WS 595 - Special Topics

Credits: 1.00 to 4.00

In-depth study of topics not covered in regular course offerings. Prereq: permission; WS 401.

WS 595W - Special Topics

Credits: 1.00 to 4.00

See description for WS 595. Writing intensive.

WS 632 - Feminist Thought

Credits: 4.00

Theories of women's oppression and emancipation explored from various historical, political, cultural, and social perspectives. A major goal of the course is to increase awareness of historical and contemporary feminist approaches to understanding women's experiences, representations, and relative positions in societies. The course also considers the interrelation of theory and practice and the impact of past feminist theories on feminist movements. Prereq: WS 401. Writing intensive.

WS 795 - Independent Study

Credits: 1.00 to 4.00

For advanced students who have the preparation to carry out an individual project of supervised research on a specific women's studies topic. Preparation should include WS 401 or equivalent, and/or other women's studies courses. Barring duplication of topic, may be repeated for a maximum of 8 credits. Prereq: permission of instructor and women's studies coordinator.

WS 796 - Advanced Topics

Credits: 1.00 to 4.00

Advanced or specialized topics not normally covered in regular course offerings. May be repeated, but not in duplicate areas. Prereq: permission.

WS 796W - Advanced Topics

Credits: 1.00 to 4.00

See description for WS 796. Writing intensive.

WS 797 - Internship

Credits: 4.00

Students gain practical experience in a woman-focused agency or organization. Plan of study and requirements are developed together with a faculty adviser and the student's workplace adviser. Bi-monthly seminar with all internship students and instructor. Prereq: permission. WS majors or minors. May be repeated up to a maximum of 8 credits.

WS 798 - Colloquium**Credits:** 4.00

Intensive study of specialized topic for advanced students. Topics vary with instructor. Prereq: permission. Required for WS minors. Barring duplication of topic, may be repeated for credit. Writing intensive.

WS 799 - Honors Thesis**Credits:** 4.00 to 8.00

With a faculty sponsor, students enrolled in the honors-in-major program develop an independent, investigative project in women's studies. Written thesis. Prereq: majors only; one other WS 700-level course prior to or concurrently with WS 799; permission.

Zoology

ZOOL 400 - Professional Perspectives in Zoology

Credits: 1.00

Presentations by departmental faculty provide an informal overview of various zoological topics and professional opportunities. The course acquaints students with faculty, provides information on departmental research projects, and facilitates early research involvement for students. Required for all first-year zoology majors. (Fall only). Cr/F.

ZOOL 401 - Human Biology

Credits: 4.00

Elementary study of structure, function, and development of all systems of the body. No credit toward major or minor. Cannot be taken for credit after ZOOL 507-508. Special fee. Lab.

ZOOL #408 - Ocean Sciences

Credits: 4.00

Ocean sciences is a hands-on, inquiry-based introduction to marine systems, focused primarily on marine biology and ecology. Designed to introduce students to science as a way of knowing and understanding the world around us, specifically the world's oceans and their contributions to world food and oxygen supply, their role in regulating climate, and their unfortunate overexploitation for our technological world. Uses evolution as the unity common to many seemingly different forms of life. Helps students discover the relevance of the topic to their own lives and to the many problems that face us in the 21st century. Engages students by helping them discover first-hand the joy and excitement that comes from making discoveries using the scientific method. Prereq: acceptance to Campus-to-Coast Fellowship Program.

ZOOL 410 - Marine Immersion

Credits: 2.00

An intensive 2-credit course for incoming freshmen, surveying a range of marine-related fields (with an emphasis on biology and ecology), research approaches, and organisms. The course is based at the Shoals Marine Laboratory on Appledore Island, where students and some faculty will be in residence. "Marine Immersion" introduces students to the breadth, excitement, and challenges of marine sciences through lectures, demonstrations, and field experiences offered by a cohort of UNH faculty, and through short research projects carried out on the island. It also introduces them to resources and opportunities available at UNH, provides an opportunity to get to know some of their professors, and lets them begin building a network among their peers even before they arrive in Durham. Special fee.

ZOOL 412 - Biology of Animals

Credits: 4.00

Fundamentals of modern animal biology from cells to organisms, including structure, function, genetics, development, ecology, and the diversity produced by animal evolution. Weekly demonstrations and virtual e-labs provide a hands-on introduction to the animal kingdom. Special fee. Lab. (Fall semester only.)

ZOOL 444 - Dogs to Dragons: Origins of Species

Credits: 4.00

A freshman "inquiry" seminar introducing fundamental evolutionary concepts and mechanisms, as well as examining the nature of science, and the ways in which scientists use imagination and inference to better understand the natural world. Through evolutionary case studies ranging from the very real to the purely imaginary, students learn to compare and assess explanatory hypotheses, and to use creative, scientifically-disciplined inference as working scientists do. They also develop their abilities to decide what

is or isn't science, and to judge the relevance and adequacy of evidence claimed to support hypotheses. The course begins by introducing the mechanism of natural selection through the engaging example of dog domestication, move from there to broader discussions of speciation (including species definitions, and case studies of speciation in progress). The central portion of the course focuses on issues of definitions (what is a "hypothesis" anyway?), and developing increasingly sophisticated and well-informed judgments about different sorts of biological information. In the final section, we explore proper and improper roles of imagination and creativity in science: how (and why) real scientists use fictional species, and how to tell the difference between fictions and frauds while leaving room for humor and invention. Writing intensive.

ZOOL 444A - Introduction to Aquatic Invasive Species

Credits: 4.00

This is an inquiry course for first-year students interested in issues relating to the management of aquatic invasive plants and animals based on an understanding of the ecology and biology. Course is a combination of lectures, laboratory and field exercises and discussions focusing on the selected freshwater and marine invasive species and their management. Special fee.

ZOOL 460 - Biological Illustration

Credits: 2.00

Scientific publishing and illustration including labeling, color techniques, and printing processes. Illustration techniques include (1) pen and ink: wildlife illustrations; (2) carbon dust: half-tone illustrations; (3) colored pencil: drafting film; (4) watercolor: for accurate and detailed illustrations. The student may choose to explore a single technique in-depth with subjects selected from a wide variety of material on Appledore Island. Course size is limited to allow individual attention. (Summers only at Shoals Marine Lab.)

ZOOL #474 - Introduction to Marine Science

Credits: 4.00

Allows non-biology majors to experience the breadth of the marine sciences under field conditions at an island (Appledore) laboratory, with excursions to seal and seabird colonies on the neighboring islands and whale feeding grounds in the Gulf of Maine. Involves field investigation, lab work, and lectures as well as reading, independent research, and scientific writing. Topics include general marine biology, intertidal ecology, plankton biology, fisheries, and benthic (sea floor) communities. (Summers only at Shoals Marine lab.)

ZOOL 503 - Introduction to Marine Biology

Credits: 4.00

Organization of marine biological communities in various marine environments pelagic, benthic, temperate, tropical. Major emphasis on the approaches (e.g., analysis of energy flow and predator-prey interactions) used to analyze marine communities and on the sampling techniques employed for each approach and the habitat type. Prereq: BIOL 411-412. (Also offered as P BIO 503.) Special fee. Lab.

ZOOL 507 - Human Anatomy and Physiology

Credits: 4.00

Cellular and systematic aspects of the human body. Laboratory exercises utilize preserved specimens, dissectible models, living tissue and computer-aided instruction. No credit if credit earned for ANSC 511-512 or ZOOL 625. Not offered for credit to zoology majors. Lab. Special fee.

ZOOL 508 - Human Anatomy and Physiology

Credits: 4.00

See description for ZOOL 507.

ZOOL 510 - Field Ornithology

Credits: 4.00

Introduces field ornithology focusing on the biology, ecology, and behavior of avifauna on the Isles of Shoals. Includes such ornithological field methods as censuring techniques, territory mapping, banding, behavioral observation, and creating a field notebook. Fieldwork is designed to supplement many classroom concepts, including territoriality, breeding biology, and survivorship. Prereq: one year of college-level biology. Lab. (Summers only at Shoals Marine Lab.)

ZOOL 518 - Vertebrate Morphology

Credits: 5.00

Evolutionary and comparative examination of vertebrate anatomy. Covers the structure of the major systems at both the macroscopic and microscopic levels. Prereq: BIOL 411-412 or equivalent. Special fee. Lab.

ZOOL 529 - Developmental Biology

Credits: 4.00

Introduces developmental biology, examining basic developmental mechanisms and their evolutionary contexts. Principles and tools of the trade, overview of major developmental events in various phyla, current areas of research and other special topics. Labs include different ways to observe development (from low- to high-tech), and work with selected live material. Prereq: BIOL 411-412 or equivalent. No credit if credit earned for ZOOL 729. Special fee. Lab.

ZOOL 542 - Ornithology

Credits: 4.00

Identification and biology of birds, especially those of northeastern United States. Involves field trips, laboratory work, and lectures. Prereq: one semester of biology. (Spring semester only.)

ZOOL 545 - Tropical Ecology

Credits: 4.00

Study of the factors affecting distribution and abundance of organisms of coral reefs, mangroves, and tropical dry and moist forest. Course conducted over winter break in the Virgin Islands National Park, St. John, USVI. \$250.00 deposit required at registration. Program fee. Prereq: one biology course. Permission required.

ZOOL 547 - Wildlife Photography

Credits: 2.00

Introduction to nature photography emphasizing macro- and telephoto techniques, and photo enhancement using Photoshop Elements.

ZOOL 570 - Coastal Ecology and Bioclimates

Credits: 4.00

Practically-oriented. Emphasizes 1) the definition, description and measurement of major abiotic factors (e.g., radiation, temperature, atmospheric moisture and precipitation, and winds and currents; 2) the role of both biotic and abiotic coastal environmental factors with respect to plants and animals, including humans; and 3) the fundamentals of dynamic meteorology and short-term weather prediction from observations of natural coastal phenomena such as cloud and wind patterns. Special attention is given to the terrestrial and littoral microclimate of Appledore Island. Prereq: one year of college-level biology; some physics or physical geography preferred. (Summers only at Shoals Marine Lab.)

ZOOL 600 - Field Experience

Credits: 1.00 to 4.00

A supervised experience providing the opportunity to apply academic experience in settings associated with future professional employment and/or related graduate opportunities. Must be approved by a faculty advisor selected by the student. May be repeated to a maximum of 8 credit hours. Prereq: permission.

Cr/F.

ZOOL 600W - Field Experience

Credits: 1.00 to 4.00

See description for ZOOL 600. Cr/F. Writing intensive.

ZOOL 609 - Biology of the Lobster

Credits: 2.00

An introduction to the biology of the American lobster, *Homarus americanus*. The course includes an overview of this ecologically and economically important species, and covers several major topics in depth, each taught by a lobster biologist expert in that field. Topics may include life history, larval development and metamorphosis, anatomy, physiological adaptation, fisheries and fishing methods, feeding mechanisms, ecology, and behavior. Lecture, laboratory, discussion, and field work. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology.

ZOOL 610 - Principles of Aquaculture

Credits: 3.00

Introduces the culture practices employed for production of aquatic organisms. Topics include ecological and environmental considerations, selective breeding, nutrition, diseases, processing, and marketing. Emphasis on finfish. Prereq: BIOL 411-412 or equivalent.

ZOOL 611 - Principles of Aquaculture Lab

Credits: 2.00

Laboratory exercises in aquaculture covering the use of chemical reagents to monitor water quality; brood stock feeding and management; use of anesthesia and fish handling; spawning marine finfish; culturing algae, rotifers and artemia for marine larviculture; larviculture of marine finfish; assessing fish growth; hatchery hygiene. Includes site visits to local production facilities. Prereq: BIOL 411-412 or equivalent. Coreq: ZOOL 610.

Co-requisites: ZOOL 610

ZOOL 625 - Principles of Animal Physiology

Credits: 3.00

Introduces the principles of animal function. The major systems (digestion, metabolism, respiration, circulation, osmotic and ionic regulation, nerve-muscle function, endocrine control) are covered with emphasis on functional mechanisms at the cell and tissue levels. Prereq: two years of the biology core curriculum.

Co-requisites:

ZOOL 626 - Animal Physiology Laboratory

Credits: 2.00

Basic training in the measurement of function in animals, data analysis and expression, and the development of scientific communication skills. Special fee. Writing intensive.

Co-requisites: ZOOL 625

ZOOL 628 - Marine Invertebrate Evolution and Ecology

Credits: 5.00

Stresses the rich diversity of marine invertebrates by integrating phylogenetic trends with physiological and behavioral adaptation, and with ecological and symbiotic interactions. Offers a comparative survey of invertebrates from protozoans to protochordates; deals with aspects of form and function, development, evolution, classification, ecology, and natural history. Students work with live and preserved animals. Extensive dissections and a field component are required. Prereq: BIOL 411-412. Special fee. Lab. (Not offered every year.)

ZOOL 630 - Biodiversity and Biology of Marine Invertebrates

Credits: 5.00

An introduction to the biology and evolution of the major invertebrate phyla, concentrating on marine representatives. Emphasis placed on the evolution of form and function, and the ecology, behavior, physiology, chemical ecology, and natural history of invertebrates. Appledore Island's unique location provides an excellent venue for the study of freshly collected and in situ representatives of most of the major phyla. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology.

ZOOL 674 - Field Marine Science

Credits: 8.00

Introduces the marine sciences with an emphasis on field work in natural habitats. Examines aspects of the systematics, morphology, physiology, behavior, and ecology of marine organisms, including intertidal plants and invertebrates, fishes, marine mammals and birds; fisheries biology; oceanography, marine geology; and human impacts on the marine environment. Sessions include lectures, discussions, field work, experience aboard a coastal research vessel, and excursions to distinctive habitats. Offered in cooperation with Cornell University. Students may not take Field Marine Science after taking Field Marine Biology and Ecology. Prereq: one full year of college-level biology. (Summers only at Shoals Marine Lab.)

ZOOL 675 - Field Marine Biology and Ecology

Credits: 8.00

Introductory marine science course emphasizing field work in natural habitats with a focus on marine ecology. Examines the ecology of the intertidal zone and the ecological, evolutionary, and physiological adaptations of marine organisms. Course includes lectures; discussions; field work, including quantitative field sampling methods; experience aboard a coastal research vessel; and excursions to distinctive habitats. Offered in cooperation with Cornell University. Students may not take this course after taking Field Marine Science. Prereq: one full year of college-level biology. (Summers only at Shoals Marine Lab.)

ZOOL 690 - Evolution

Credits: 4.00

Biological evolution is the changes within populations of organisms that extend beyond the lifetime of individuals. Darwin's mechanism of evolution by natural selection, and other evolutionary forces, explain the diverse adaptations of organisms to different environments. Topics include principles of heredity, sources and maintenance of variation, adaptation, speciation, classification, development, the history of life and the earth, and current controversies. Prereq: BIOL 411-412 or equivalent. Writing intensive.

ZOOL 708 - Stream Ecology

Credits: 4.00

Ecological relationships of organisms in flowing water; streams as ecosystems. Lectures on physical and chemical features of streams, floral and faunal communities, and factors controlling populations and behavior of stream organisms. Lab exercises employ both field and laboratory experimental techniques. Special fee. Lab. (Not offered every year.)

ZOOL 710 - Ichthyology

Credits: 4.00

Introduces the evolution, systematics, anatomy, physiology, and ecology of fishes, with emphasis on New England species. Prereq: principles of biology or equivalent. Lab. (Offered in alternate years.)

ZOOL 711 - Zooplankton Ecology

Credits: 4.00

Methods of sampling populations, factors regulating temporal and spatial distribution, trophic interactions of communities, role of zooplankton in the food web of lakes. Experimental techniques employed in field trips

to freshwater habitats; seminars examine current research. Prereq: general biology. Special fee. Lab. (Not offered every year.)

ZOOL 712 - Mammalogy

Credits: 4.00

Evolution, ecology, behavior, physiology, and diversity of mammals. Focuses on conceptual issues such as the relations of structure, function, physiology, and ecology of species; reproductive physiology and life history strategies; and the evolution of mating systems and social structure. Requires familiarity with mammalian groups to the family level and identification of local fauna to species. Prereq: BIOL 411-412 or equivalent. Lab. (Not offered every year.) Special fee.

ZOOL 713 - Animal Behavior

Credits: 4.00

Introduces the naturalistic study of animal behavior. Emphasizes the evolution, development, physiology, and ecology of behavior. Topics include the genetic and acquired bases of behavior, neuroethology and behavioral endocrinology, communication, orientation, foraging strategies, reproductive ecology, and the evolution of altruistic behavior. Prereq: BIOL 411-412 or equivalent. Lab. Writing intensive.

ZOOL 714 - Ecology of Animal Behavior

Credits: 4.00

An animal's behavioral patterns represent its abilities to deal with the environment dynamically. Course focuses on ecological and evolutionary significance of behavioral patterns found in all organisms, particularly those animals that inhabit coastal marine environments. Strong emphasis on methods of behavioral research and interpretation of behavioral patterns using field observations of diverse fauna of Appledore Island and surrounding waters. Prereq: introductory biology; experience in psychology, animal behavior, or ecology is helpful. (Summers only at Shoals Marine Lab.)

ZOOL 717 - Lake Ecology

Credits: 4.00

Introduces the ecology of freshwater systems, with emphasis on lakes. Origins of lakes and the effects of watersheds on lake chemistry, nutrient cycling, and the lake food web are explored. Other topics include the impact of human disturbances on productivity and aquatic food webs and methods used for the management and restoration of lakes. Comparisons are made of the structure and functions of lake ecosystems found in temperate, tropical and arctic regions. Prereq: general biology. (Also offered as PBIO 717.)

ZOOL 719 - Field Studies in Lake Ecology

Credits: 4.00

Ecology of lakes and other freshwater habitats examined through field studies. Emphasizes modern methods for studying lakes; analysis and interpretation of data; and writing of scientific papers. Seminars on research papers and student presentations of class studies. Field trips to a variety of lakes, from the coastal plain to White Mountains to investigate problems, such as eutrophication, acidification, biodiversity and biotoxins. Capstone experiences include interaction with state agencies lake stakeholders, and the submission of written manuscripts for publication. Prereq: introductory biology. (Also offered as PBIO 719.) Special fee. Lab. Writing intensive.

ZOOL 721 - Aquatic Invasive Species

Credits: 4.00

Capstone course for a limited number of biological science majors to work closely with and help teach a Discovery course for non-majors in biology. Involves lectures, discussions, and laboratory and field exercises and write-ups focusing on managing aquatic invasive species based on an understanding of their ecology. Special fee.

ZOOL 725 - Marine Ecology

Credits: 4.00

Marine environment and its biota, emphasizing intertidal and estuarine habitats. Includes field, laboratory, and an independent research project. Prereq: general ecology; permission. Marine invertebrate zoology, oceanography, and statistics are desirable. (Also offered as PBIO 725.) Special fee. (Not offered every year.)

ZOOL 730 - Underwater Research

Credits: 4.00

Hypothesis testing and experimental design, theoretical and practical aspects of sampling, and critiques of current research papers. Includes special problems of conducting research underwater (diving physics and physiology, theory and use of diving tables, hyperbaric medicine) and underwater techniques (underwater photography and video, photo quadrates, tagging and marking, cages and enclosures). Students must supply their own equipment. Students with special research interests are encouraged to enroll in an additional third week of independent underwater research. Prereq: recognized scuba certification, a medical examination, one year of biology or other supporting science. (Summers only at Shoals Marine Lab.)

ZOOL 732 - Lake Management: A Multidisciplinary Approach

Credits: 4.00

Lectures and seminars on interpreting lake water quality, developing a natural history inventory for lakes, the process of creating a lake management plan, and resolution of conflicting uses of lakes. Students develop actual lake management plans in cooperation with government agencies and lake associations. Guest speakers from state agencies and non-governmental organizations. Introduction to GIS (Geographic Information Systems) methods for the analysis of lakes and watersheds. Present lake management issues from scientific and social science points of view. Open to students from all disciplines. (Also offered as PBIO 732.) Special fee. Lab.

ZOOL 733 - Behavioral Ecology

Credits: 4.00

Behavioral adaptations of animals to their environment, including the evolution of behavior and behavioral genetics; foraging and competition for resources; reproductive ecology, mating systems and parental care; and the evolution of cooperative behavior. Examples include both vertebrates and invertebrates. Emphasizes critical understanding of concepts as exhibited in oral and written exercises. Students conduct independent investigations. Prereq: ZOOL 713 or permission. Lab. (Offered in alternate years.) Writing intensive.

ZOOL 734 - Diversity of Fishes

Credits: 6.00

Emphasizes the diversity of fishes in two aspects: diversity of evolutionary solutions to problems faced by fishes and the great diversity of different types of fishes that inhabit the world. Prereq: one full year of college level biology; background in vertebrate biology is recommended, but not required. Special fee. (Summers only at Shoals Marine Lab.)

ZOOL 741 - Sharks: Biology and Conservation

Credits: 3.00

This course covers advanced topics in the evolution, diversity, anatomy, functional morphology, neurobiology, sensory systems, behavior, reproduction, development, and conservation of cartilaginous fishes: the approximately 1000 species of sharks, skates, rays and chimaeras, which collectively make up the group Chondrichthyes. Special fee. (Summers only at Shoals Marine Lab.) Prereq: Anatomy, Ichthyology or permission.

ZOOL 742 - Animal Social Behavior

Credits: 4.00

Introduction to the field of study of animal social behavior, including natural selection and behavior, levels of analysis, animal communication, territoriality, kin recognition, orientation, and mating systems. Field study of the herring gulls that nest on Appledore Island, including methods of measuring behavior and designing experiments, and individual research. Studying *The Herring Gull's World*, the classic book by Tinbergen, will augment students' understanding of the gull's fascinating social world. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college level biology.

ZOOL 745 - Biology and Diversity of Insects

Credits: 4.00

Study of the biology of insects, the most diverse group of organisms, focusing on why they are unique, how they have become so diverse, and the basis of their success. The laboratory is designed to develop an understanding of insect diversity through utilization of different sampling techniques in several habitats, sorting to "morphospecies," and use of biodiversity indices. Prereq: BIOL 411-412 or equivalent. Special fee. (Not offered every year.)

ZOOL 750 - Biological Oceanography

Credits: 4.00

Biological processes of the oceans, including primary and secondary production, trophodynamics, plankton diversity, zooplankton ecology, ecosystems and global ocean dynamics. Field trips on R/V Gulf Challenger and to the Jackson Estuarine Laboratory. Prereq: one year of biology or permission of the instructor. (Also offered as ESCI 750.) Special fee. Lab. (Not offered every year.)

ZOOL 751 - Research in Marine Biology

Credits: 6.00

Introduces the adaptations of organisms to marine environments and the role these adaptations have in structuring marine communities using an experimental approach. Emphasizes experimental design, implementation, data analysis, and scientific presentations. Offered in cooperation with Cornell University. Prereq: one year of college-level biology. Additional experience in ecology or physiology is recommended. (Summers only at Marine Lab.)

ZOOL 753 - Marine Vertebrates

Credits: 6.00

Lectures, laboratory work, and fieldwork on the systematics, ecology, and physiology of fishes, marine reptiles, marine birds, and marine mammals of the Gulf of Maine. Offered in cooperation with Cornell University. Prereq: field marine science or vertebrate biology. (Summers only at Shoals Marine Lab.)

ZOOL 754 - Anatomy and Function of Marine Vertebrates

Credits: 4.00

The course is designed to introduce students to a comparative study of the principal organ systems of vertebrates (i.e., fishes, sea turtles, marine birds, marine mammals) that are specifically adapted to the marine environment. Rather than focusing only on description of anatomical structure, the anatomy of structures are investigated with function, biological role, and evolutionary relationships. Laboratory exercises cover osteology, dissection, behavior and biomechanics. Special fee. (Summers only at Shoals Marine Lab.) Prereq: one year college biology.

ZOOL 755 - Forensic Science and Wildlife Biologist

Credits: 2.00

Field-oriented introduction to forensic sciences and the special rules and practices governing the utilization of science within the justice system. The unique teaching governing the utilization of science within the

justice system. The unique teaching facilities of the Shoals Marine Laboratory and the close proximity of its maritime surroundings allow students to actively participate in classroom lectures, practical field exercises, and hands-on laboratory sessions all targeted at providing a realistic introduction to the world of the forensic scientists. Special fee. (Summers only at Shoals Marine Lab.) One year college biology, ecology, or marine science.

ZOOL 772 - Fisheries Biology

Credits: 3.00

Principles of fisheries science, with emphasis on techniques used to assess the biological characteristics of exploited fish populations, and the use of such information for fisheries management. Prereq: ZOOL 710 or equivalent; permission. (Not offered every year.)

ZOOL 773 - Physiology of Fish

Credits: 4.00

Investigates the physiological processes responsible for maintaining homeostasis in fishes. Focuses on the function and regulation of the major organ systems during stress and environmental adaptation. Topics include reproduction, osmoregulation, digestion, endocrinology, and sensory perception. Prereq: ZOOL 625 or equivalent; / or permission.

ZOOL 777 - Neurobiology and Behavior

Credits: 4.00

Survey of fundamental concepts and recent discoveries in neurobiology. Topics include structure and function of neurons, development, cellular basis of behavior (sensory and motor systems), neuropharmacology, and neural plasticity (learning). Prereq: BIOL 411-412 or permission. Physiology (ZOOL 625) also desirable.

ZOOL 795 - Special Investigations

Credits: 1.00 to 4.00

Independent study in various areas including but not limited to animal behavior, developmental biology, ecology, endocrinology, evolution, ichthyology, genetics, history of biology, invertebrate biology, neurobiology and behavior, protozoology, teaching practices, underwater research, vertebrate biology, and biological techniques. Course sections for advanced work, individual or group seminar. May include reading, laboratory work, organized seminars, and conferences. Prereq: permission of department chairperson and staff concerned.

ZOOL 795W - Special Investigations

Credits: 1.00 to 4.00

See description for ZOOL 795. Writing intensive.

ZOOL 796 - Special Investigations

Credits: 1.00 to 4.00

See description for ZOOL 795.

ZOOL 796W - Special Investigations

Credits: 1.00 to 4.00

See description for ZOOL 796. Writing intensive.

ZOOL 799 - Honors Senior Thesis

Credits: 1.00 to 4.00

Working under the direction of a faculty sponsor, the student plans and carries out independent research resulting in a written thesis. Limited to students entering their senior year; required for students in the honors program or working toward honors-in-major. Prereq: permission. A two-semester sequence. 2-4

credits each semester; 8 credits maximum. IA (continuous grading) given at the end of the first semester.
Writing intensive.


[CEPS](#) [CHHS](#) [COLA](#) [COLSA](#) [TSAS](#) [UNH Manchester](#) [WSBE](#) [Faculty Search](#) [Course Descriptions](#)
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[General Information](#)
[UNH Affirmative Action Statement](#)
[University Calendar](#)
[Campus Map](#)
[Trustees and Administrative Officers](#)
[Enrollment Statistics, Fall Semester](#)
[About the Online Undergraduate Catalog](#)

Academic Information

[University Academic Requirements](#)
[Degrees and Major Programs of Study](#)
[Program Abbreviations](#)
[Special University Programs](#)
[Course Descriptions](#)
[Time and Room Schedule](#)
[Faculty Listing](#)

Other University Programs

[Graduate School](#)
[Continuing Education and Summer Session](#)

UNH Faculty | Emeritus Faculty

* Graduate Faculty

<u>Name</u>	<u>Title</u>	<u>Department</u>	<u>Degree Code</u>	<u>Institution</u>	<u>Degree Year</u>
Abbott, Katherine R	LECTURER	Sociology	B.S.	Arizona State University	2007
			M.S.	Arizona State University	2010
			Ph.D.	Arizona State University	2013
Aber, John D*	PROFESSOR	Natural Resources & The Environment	B.S.	Yale University	1971
			B.S.	Yale University	1971
			M.F.S.	Yale University	1973
			M.F.S.	Yale University	1973
			Ph.D.	Yale University	1976
			Ph.D.	Yale University	1976
Abrams, Eleanor D*	EXECUTIVE DIRECTOR	Engagement & Academic Outreach	B.S.	University of Massachusetts - Amherst	1983
			Ph.D.	Louisiana State University	1994
Abramson, Seth D	ASSISTANT PROFESSOR	English	B.A.	Dartmouth College	1998
			J.D.	Harvard Law School	2001
			M.F.A.	University of Iowa	2009
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Abril Sanchez, Jorge	LECTURER	Languages, Literatures, & Cultures	B.A.	Universidad de Oviedo, Spain	2001
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			M.A.	Obafemi Awolowo University, Nigeria	1984
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Akiyama, Sachiko	ASSISTANT PROFESSOR	Art and Art History	B.A.	Amherst College	1995
			M.F.A.	Boston University	2002
Aktekin, Tevfik *	ASSISTANT PROFESSOR	Decisions Sciences	B.S.	Yildiz Technical University, Turkey	2002
			M.B.A.	George Washington University	2004
			Ph.D.	George Washington University	2009
Aliano, Richard A	LECTURER	Political Science	B.A.	City University of New York	1968
			M.A.	City University of New York	1969
			J.D.	St. John's University - New York	1981
Aliouche, El-Hachemi *	ASSOCIATE PROFESSOR	Hospitality Management	B.S.	University of New Hampshire	1980
			M.A.	University of New Hampshire	1982
			Ph.D.	University of New Hampshire	1992
			M.B.A.	University of New Hampshire	1995
Amato, Christopher *	ASSISTANT PROFESSOR	Computer Science	B.A.	Tufts University	1999
			B.S.	University of Massachusetts - Amherst	2004
			M.S.	University of Massachusetts - Amherst	2007
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Amato-Wierda, Carmela C*	ASSOCIATE PROFESSOR	Dean's Office - CEPS	B.A.	Harvard University	1988
			Ph.D.	Rensselaer Polytechnic Institute Western Illinois	1993

Ames, Raina S	ASSOCIATE PROFESSOR	Theatre & Dance	B.A.	University	1990
			M.Ed.	Western Illinois University	1999
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Andrade, Arturo S*	ASSISTANT PROFESSOR	Biological Sciences	B.S.	University of Michoacan, Mexico	2001
			Ph.D.	National Polytechnic Institute of Toulouse, France	
Andrews, Tama H	SENIOR LECTURER	Political Science	B.A.	University of New Hampshire	1997
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Annicchiarico, Michael J*	PROFESSOR	Music	B.M.	University of New Hampshire	1976
			M.F.A.	Brandeis University	1981
			Ph.D.	Brandeis University	1993
Arcand, Carolyn L	LECTURER	Political Science	B.S.	Syracuse University	2001
			M.P.A.	University of Southern Maine	2006
			M.S.	University of Massachusetts - Boston	2011
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Armstrong, Jennifer K	PRINCIPAL LECTURER	Philosophy	A.B.	Colby College	1985
			MTS	Harvard Divinity School	1987
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Arthanat, Sajay *	ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	Santosh College Occupational Therapy, India	1997
			C.A.G.S.	State University of New York at Buffalo	2004
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Asbjornsen, Heidi *	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.A.	Carleton College	1989

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Ashcraft, Catherine M*	ASSISTANT PROFESSOR	Natural Resources & The Environment	B.A.	University of Pennsylvania	1998
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Ashton-Savage, Audrey	LECTURER	Marketing	B.A.	University of New Hampshire	1971
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Ashwell, Thomas W	SENIOR LECTURER	Kinesiology	B.A.	University of Massachusetts - Amherst	1988
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Atallah, Shady S*	ASSISTANT PROFESSOR	Natural Resources & The Environment	B.S.	Holy Spirit University of Kaslik, Lebanon	2003
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			M.Sc.	American Univ of Beirut	2006
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Aydelott, Kathrine C	ASSISTANT PROFESSOR	Reference	B.A.	Colby College	1990
			M.A.	University of Connecticut	1995
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			M.L.I.S.	Simmons College	2006
Aytur, Semra A*	ASSOCIATE PROFESSOR	Health Management & Policy	B.A.	Brown University	1991
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Bachrach, David S*	PROFESSOR	History	B.A.	Carleton College	1994
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Bailey, Brigitte G*	ASSOCIATE PROFESSOR	English	B.A.	University of Virginia	1977
			A.M.	Harvard University	1980
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Bailey, Cristina J*	ASSISTANT PROFESSOR	Accounting and Finance	M.	University of New Mexico	2005
Baker, Alan L*	ASSOCIATE PROFESSOR	Biological Sciences	B.A.	State University of New York at Binghamton	1965
			Ph.D.	University of Minnesota	1973
Baldwin, Kenneth C*	PROFESSOR	Mechanical Engineering	B.S.	Northeastern University	1973
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Ballestero, Thomas P*	ASSOCIATE PROFESSOR	Civil and Environmental Engineering	B.S.	Pennsylvania State University	1975
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Banach, Mary *	ASSOCIATE PROFESSOR	Social Work	B.A.	University of Wisconsin - Milwaukee	1975
			M.S.W.	New York University	1978
			D.S.W.	Columbia University in the City of New York	1995
Banyard, Victoria L*	PROFESSOR	Psychology	B.A.	Brown University	1988
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Bao, Xiaoyan *	ASSISTANT PROFESSOR	Accounting and Finance	B.A.	Dongbei University, China	1977
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Barber, Heather *	ASSOCIATE PROFESSOR	Kinesiology	B.S.	St. Lawrence University	1978
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Barber, Nelson A*	ASSOCIATE PROFESSOR	Hospitality Management	B.S.	San Jose State University	1978
			A.O.S.	Culinary Institute of America	2004
			M.S.	Purdue University	2005
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Barcelona, Robert J*	ASSOCIATE PROFESSOR	Recreation Management & Policy	B.A.	University of Mississippi	1993
			M.S.	Indiana University - Bloomington	1995
			Ph.D.	Indiana University - Bloomington	2001
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Barksdale, Pamela J	PRINCIPAL LECTURER	English	B.A.	University of New Hampshire	1989
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Barrows, Clayton W*	PROFESSOR	Hospitality Management	B.S.	University of Massachusetts - Amherst	1982
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			Ed.D.	University of Massachusetts - Amherst	1990
Barth, Brian M	ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Colorado State University	2004
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Bartos, Radim *	ASSOCIATE PROFESSOR	Computer Science	M.S.	Czech Technical University, Czech Republic	1987
			M.S.	University of Denver	1996
			Ph.D.	University of Denver	1997
Bartow, Ann M	PROFESSOR	UNHL FP IP Center	B.S.	Cornell University	1985
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Basterra, Maria *	PROFESSOR	Mathematics & Statistics	B.S.	University of Texas at Austin	1992
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Batterson, Sarah A	LECTURER	History	B.A.	Vassar College	2001
			M.A.	Brandeis University	2005
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Bauer, Christopher F*	PROFESSOR	Chemistry	B.S.	University of Notre Dame	1974
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Bean, Gretchen H	CLINICAL ASSISTANT PROFESSOR	Social Work	B.A.	University of New Hampshire	1995
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Beasley, Joan B*	RESEARCH ASSOCIATE PROFESSOR	Social Work	Ph.D.	Brandeis University	2000
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Beemer, Cristy A*	ASSISTANT PROFESSOR	English	B.A.	Hofstra University	1993
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			B.A.	State University of New York at New Paltz	2000
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			Ph.D.	Miami University - Ohio	2008
Beemer, Lawrence W	LECTURER	English	B.A.	State University of New York at Purchase	1996
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Begis, Maggie D	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Pennsylvania State University	1998
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Bell, Brent J*	ASSOCIATE PROFESSOR	Kinesiology	M.S.	New England College	1997
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Bell, Erin S*	ASSOCIATE PROFESSOR	Civil and Environmental Engineering	B.C.E.	Georgia Institute of Technology	1996
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Beller-McKenna, Daniel *	ASSOCIATE PROFESSOR	Music	B.A.	Temple University	1985
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Benassi, Victor A*	PROFESSOR	Psychology	B.S.	California State College in Pe	1969
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Benchetrit, Assaf	ASSISTANT PROFESSOR	Theatre & Dance	B.F.A.	Montclair State College	2012
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Bennett, Jessie L*	CLINICAL ASSISTANT PROFESSOR	Recreation Management & Policy	B.S.	Green Mountain College	2004
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Bennett, Karen Patricia	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Natural Resources	B.S.	University of New Hampshire	1979
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Benoit, Jean *	PROFESSOR	Civil and Environmental Engineering	B.S.	University of Montreal, Canada	1977
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Berda, Erik B*	ASSOCIATE PROFESSOR	Chemistry	B.S.	Pennsylvania State University	2003
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Berenguier, Nadine S	PROFESSOR	Languages, Literatures, & Cultures	D.E.U.G.	University of Paris IV Sorbonne, France	1976
			M.A.	University of Pittsburgh	1983

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Bergeron, L Rene*	ASSOCIATE PROFESSOR	Social Work	B.A.	University of New Hampshire	1973
			M.S.W.	University of Connecticut	1981
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Bergeron, R Daniel *	PROFESSOR	Computer Science	B.S.	Brown University	1966
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Berglund, Per *	PROFESSOR	Physics	B.S.	Lund University, Sweden	1988
			Ph.D.	University of Texas at Austin	1993
Berguin, Mary E	LECTURER	English	B.A.	University of Southern Maine	1971
Berlinsky, David L*	PROFESSOR	Biological Sciences	B.S.	Michigan State University	1977
			M.S.	University of New Hampshire	1981
			Ph.D.	University of Rhode Island	1989
Berndtson, William E*	PROFESSOR	Biological Sciences	B.S.	University of Connecticut	1966
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Berst, John R	ASSISTANT PROFESSOR	Theatre & Dance	B.A.	State University of New York	1989
			M.F.A.	Purdue University	1999
Berube, Scott R	LECTURER	Accounting and Finance	B.S.	University of New Hampshire	2002
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Birch, Thomas D	PROFESSOR	Natural & Social Sciences	B.A.	Kenyon College	1977
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Bloser, Peter F*	RESEARCH ASSOCIATE PROFESSOR	Space Science Center	A.B.	Princeton University	1994
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Bochert, Mark L	LECTURER	Computer Science	B.A.	University of Southern Maine	1986
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Boettcher, Margaret S*	ASSOCIATE PROFESSOR	Earth Sciences	B.S.	Hampshire Brown University	1998
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Bolduc, Brandie L	LECTURER	Education	B.A.	Humboldt State Univ	1994
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Bolker, Jessica A*	ASSOCIATE PROFESSOR	Biological Sciences	B.S.	Yale University	1986
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Bolster, W Jeffrey *	PROFESSOR	History	B.A.	Trinity College - Conn	1976
			M.A.	Brown University	1984
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Bonica, Mark J*	ASSISTANT PROFESSOR	Health Management & Policy	B.A.	University of Massachusetts - Amherst	1992
			M.S.	Univ Colorado/Denver	1999
			M.B.A.	University of Massachusetts - Amherst	2000
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Bonzani, Paul	CLINICAL ASSISTANT PROFESSOR	Occupational Therapy	M.H.S.	University of Florida	2007
Borda, Jennifer L	ASSOCIATE PROFESSOR	Communication	B.A.	Villanova University	1995
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Bornstein, Steven P*	ASSOCIATE PROFESSOR	Communications Disorders	B.S.	Northeastern University	1975
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			Ph.D.	University of Connecticut	1981
Boucher, Adam N	LECTURER	Mathematics & Statistics	B.S.	Rensselaer Polytechnic Institute	2001
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Boucher, Ronald J	LECTURER	Hospitality Management	A.	Culinary Institute of America	1978
Boudreau, Marc A*	ASSISTANT PROFESSOR	Chemistry	B.S.	Mount Allison University	1997
			B.S.	University of Victoria, Canada	2001
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Boudreau, Scott D	LECTURER	Thompson School of Applied Science	B.S.F.	University of New Hampshire	1999
Boulton, Elizabeth P*	ASSOCIATE PROFESSOR	Biological Sciences	D.V.M.	University of Georgia	1980
Boylan, Amy	ASSOCIATE PROFESSOR	Classics, Humanities & Ital Studies	B.A.	University of California - Los Angeles	1992
			M.A.	San Francisco State University	1997
			M.A.	University of California - Los Angeles	2000
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Boyle, Phillip D	LECTURER	Decisions Sciences	MENGR	Cornell University	1976
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Boysen, Andrew A*	PROFESSOR	Music	B.M.	University of Iowa	1991
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			D.M.A.	University of Rochester	1998
Bradt, Shane R	ASSOCIATE STATE SPECIALIST/PROFESSOR	Natural Resources	B.S.	Nazareth College	1996
			M.S.	University of New Hampshire	2000
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Braswell, Angela M	CLINICAL ASSISTANT PROFESSOR	Nursing	A.D.N.	New Hampshire Community Techni	1999
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Brettschneider, Marla B*	PROFESSOR	Political Science	B.A.	State University of New York at Binghamton	1986
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Brewer, Jennifer F	ASSOCIATE PROFESSOR	Geography	A.B.	University of Michigan	1989
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			M.S.	University of Maine	2002
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Brito, Andre Fonseca De*	ASSOCIATE PROFESSOR	Biological Sciences	D.V.M.	Federal University of Minas Gerais, Brazil	1996
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Britton, Dennis A*	ASSOCIATE PROFESSOR	English	B.A.	University of Southern California	1998
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Bromberg, Daniel E*	ASSISTANT PROFESSOR	Political Science	B.A.	University at Albany	2001
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Broussard, C Anne*	PROFESSOR	Social Work	B.A.	University of Texas at Austin	1974
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Brouwer Burg, Marieka E	LECTURER	Anthropology	B.A.	University of Wisconsin - Madison	2005
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Brown, Benjamin Cliff*	ASSOCIATE PROFESSOR	Sociology	B.A.	Earlham College	1987
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Brunet, Stephen A	ASSOCIATE PROFESSOR	Classics, Humanities & Ital Studies	B.A.	Pomona College	1976
			M.A.	University of Pittsburgh	1978
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Bstieler, Ludwig A*	ASSOCIATE PROFESSOR	Marketing	M.B.A.	University of Innsbruck, Austria	1989
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Buckley, Louise A	ASSOCIATE PROFESSOR	Reference	B.A.	St. John's University - New York	1979
			M.A.	St. John's University - New York	1981
			M.L.S.	Rutgers University	1992
Budd, Jordan C	INTERIM DEAN	UNHL Dean's Office Operations	B.A.	Harvard University	1983
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Burke, Cynthia A	CLINICAL ASSISTANT PROFESSOR	Biological Sciences	M.B.A.	University of New Hampshire	
Burke, Joanne D*	CLINICAL ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Rhode Island	1975
			M.Ed.	Tufts University	1977
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Burvikova, Ekaterina V	LECTURER	Languages, Literatures, & Cultures	B.A.	State Pushkin Institute	2005
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Byam, Martha A	CLINICAL ASSISTANT PROFESSOR	Social Work	B.A.	University of New Hampshire	1975
			M.S.W.	University of Utah	1979
Cacarillo, Aimee L	LECTURER	Theatre & Dance	A.	Edith Cowan Univ, Australia	2003
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Calder, Brian R*	RESEARCH ASSOCIATE PROFESSOR	Center for Coastal & Ocean Mapping	M.S.	Heriot-Watt University, Edinbu	1994
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Came, Rosemarie E*	ASSISTANT PROFESSOR	Earth Sciences	B.S.	Boston College	1994
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			M.A.	Massachusetts Institute of Technology	2002
			Ph.D.	Massachusetts Institute of Technology	2005
Campagna, Rachel L*	ASSISTANT PROFESSOR	Management	B.A.	Allegheny College	2000
			M.	Ohio State University	2005
			Ph.D.	Washington University - St Louis	2011
Campbell, Molly C	LECTURER	English	B.A.	University of New Hampshire	2006
			M.A.T.	University of New Hampshire	2007
Capozzoli, Michelle Hopkins	LECTURER	Mathematics & Statistics	B.S.	Bridgewater State University	1992
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Cappiello, Joyce D*	ASSISTANT PROFESSOR	Nursing	B.S.	Marycrest College	1971
			M.S.	Boston College	1977
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Caputo, Christine A*	ASSISTANT PROFESSOR	Chemistry	B.S.	Carleton University	2001
			M.S.	Mcgill University Canada	2004
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		Thompson		University of New	

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			M.O.E.	University of New Hampshire	1987
Cardinali, Michael C	LECTURER	Art and Art History	B.F.A.	State University of New York at Purchase	2001
			M.F.A.	Mass College of Art	2006
Carey, Gale B*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Massachusetts - Amherst	1974
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			M.F.A.	Boston University	1993
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Caron, Rosemary M*	PROFESSOR	Health Management & Policy	B.A.	Regis College	1990
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			M.P.H.	Boston University	1998
Carr, Russell T*	PROFESSOR	Chemical Engineering	B.S.	Brigham Young University	1980
			M.S.	University of Rochester	1983
			Ph.D.	University of Rochester	1984
Carroll, John E*	PROFESSOR	Natural Resources & The Environment	A.B.	La Tech Univ	1966
			M.A.	Western Michigan University	1968
			Ph.D.	Michigan State University	1974
Carter, Elizabeth A*	ASSISTANT PROFESSOR	Political Science	B.A.	Whitman College	1997
			M.A.	University of Washington	2003
			M.P.A.	University of Washington	2004
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Carter, Michael J*	ASSOCIATE PROFESSOR	Electrical & Computer Eng Dept	B.S.E.	University of Michigan	1975
			M.S.	Stanford University	1976
			Ph.D.	University of Michigan	1984
Carter, Vernon B*	ASSOCIATE PROFESSOR	Social Work	A.A.	Orange County Community College	1968
			B.A.	State University of New York	1970
			M.S.W.	University of New Hampshire	1998
			Ph.D.	Boston College	2003
Cashman, Holly R*	ASSOCIATE PROFESSOR	Languages, Literatures, & Cultures	B.A.	Hood College	1994
			M.A.	University of Michigan	1997
			Ph.D.	University of Michigan	2001
Cassily, Shaleen A	CLINICAL INSTRUCTOR	Education	B.A.	University of Pennsylvania	1993
			M.S.Ed.	University of Pennsylvania	1994
Cavicchi, Jon R	SENIOR LECTURER	UNHL Library	B.A.	Stonehill College	1981
			J.D.	Franklin Pierce Law Center	1984
			Ph.D.	IIS University, India	2011
			LL.M.	Franklin Pierce Law Center	1999
Celikkol, Barbaros *	PROFESSOR	Mechanical Engineering	B.S.	Elon University	1964
			M.S.	Stevens Institute of Technology	1967
			Ph.D.	University of New Hampshire	1972
Cerullo, John J	PROFESSOR	Humanities	B.A.	University of Pennsylvania	1971
			M.A.	University of Pennsylvania	1976
			Ph.D.	University of Pennsylvania	1980

Chagnon, Matthew C	PROFESSOR	Thompson School of Applied Science	A.A.S.	University of New Hampshire	1979
			B.S.	University of New Hampshire	1986
			M.S.	University of New Hampshire	1988
Chamberlin, Kent A*	PROFESSOR	Electrical & Computer Eng Dept	B.S.	Ohio University	1974
			M.S.	Ohio University	1976
			Ph.D.	Ohio University	1982
Chandler, Donald S*	PROFESSOR	Biological Sciences	A.A.	Shasta College	1969
			B.S.	University of California - Davis	1971
			M.S.	University of Arizona	1973
			Ph.D.	Ohio State University	1976
Chandran, Benjamin D G*	PROFESSOR	Physics - Joint Positions	B.A.	Yale University	1990
			M.A.	Princeton University	1994
			Ph.D.	Princeton University	1997
Chapman, Erik W*	ASSISTANT STATE SPECIALIST/PROFESSOR	Natural Resources	B.A.	Wesleyan University	1990
			M.S.	University of Wisconsin - Madison	1999
			Ph.D.	Old Dominion University	2009
Chapman-Bosco, Laurie	PROFESSOR	Thompson School of Applied Science	B.S.	University of New Hampshire	1986
			M.O.E.	University of New Hampshire	1995
Charntikov, Sergios *	ASSISTANT PROFESSOR	Psychology	M.A.	California State University, S	2002
			M.A.	California State University, S	2009
			Ph.D.	University of Nebraska	2015
Charpentier, Michel H*	ASSOCIATE PROFESSOR	Computer Science	B.S.	National Polytechnic Institute of Toulouse, France	1993
			M.S.	National Polytechnic Institute of Toulouse,	1993

				France	
			Ph.D.	National Polytechnic Institute of Toulouse, France	1997
Chaston, John M*	ASSOCIATE PROFESSOR	Languages, Literatures, & Cultures	B.A.	Brigham Young University	1980
			M.A.	Brigham Young University	1982
			Ph.D.	University of Texas	1987
Chavajay, Juan Pablo*	ASSOCIATE PROFESSOR	Psychology	M.A.	University de San Carlos, Guatemala	1989
			M.A.	University of California - Santa Cruz	1995
			Ph.D.	University of California - Santa Cruz	1999
Chavez, Daniel *	ASSISTANT PROFESSOR	Languages, Literatures, & Cultures	B.S.	Instituto Tech Monterrey	1991
			M.A.	Ohio University	1994
			M.A.	Ohio University	1999
			Ph.D.	University of Michigan	2002
Chen, Jianhong *	ASSISTANT PROFESSOR	Management	B.A.	Shandong University, China	2006
			M.A.	Shandong University, China	2009
			Ph.D.	Drexel University	2014
Chen, Meng	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Nanjing University, China	2003
			Ph.D.	University of Texas Health Sci	2009
Chen, Szu-Feng	ASSISTANT PROFESSOR	Theatre & Dance	B.F.A.	National Taipei University of Technology, Taiwan	2000
			M.F.A.	University of Texas	2008
Chen, Xuanmao	ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Nanchang University, China	1997
			M.S.	Fudan University, China	2000
				University of	

			Ph.D.	Tuebingen, Germany	2006
Chini, Gregory P*	ASSOCIATE PROFESSOR	Mechanical Engineering	B.S.	University of Virginia	1993
			M.S.	Cornell University	1996
			Ph.D.	Cornell University	1999
Chiu, Monica Elizabeth*	PROFESSOR	English	B.A.	St. Catherine University	1987
			M.A.	State University of New York at Binghamton	1992
			Ph.D.	Emory University	1996
Cho, Eun Kyeong *	ASSOCIATE PROFESSOR	Education	B.A.	Ewha Womans University, Korea	1991
			M.A.	Ewha Womans University, Korea	1993
			Ed.M.	Columbia University in the City of New York	2001
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Christie, Andrew D*	ASSOCIATE PROFESSOR	Philosophy	A.B.	Princeton University	1974
			M.S.L.	Yale University	1979
			Ph.D.	Massachusetts Institute of Technology	1983
Chu, Brian Wei-Kuo*	PROFESSOR	Art and Art History	B.F.A.	Queens College of the City University of New York	1991
			M.F.A.	Queens College of the City University of New York	1993
Chu, Feixia *	ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Wuhan University, China	1995
			M.S.	University of South Florida	1998
			Ph.D.	University of California - San Francisco	2004
Churchard, Timothy J	PRINCIPAL LECTURER	Education	B.A.	University of New Hampshire	1967
			M.Ed.	Salem State College	1973
Ciccone, Stephen J*	ASSOCIATE PROFESSOR	Accounting and	B.S.	University of Florida	1994

		Finance	M.A.	University of Florida	1994
			Ph.D.	Florida State University	2000
Clairmont, Richard E	PRINCIPAL LECTURER	Classics, Humanities & Ital Studies	B.A.	University of New Hampshire	1971
			M.A.	University of Virginia	1973
			Ph.D.	Univ of Chicago-Loyola	1983
Clark, Kimberly E	LECTURER	Economics	A.A.	Mcintosh College	1986
			B.A.	Salem State College	1993
			M.Ed.	University of New Hampshire	2000
Clark, Maryann	LECTURER	Decisions Sciences	B.S.	Bryant University	1988
Clark, Rebecca R	LECTURER	Political Science	B.A.	Bowdoin College	2001
			Ph.D.	Boston College	2012
Clarke, Stephanie L	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of New Hampshire	2007
			M.	Saint Josephs Coll	2015
Clyde, William C*	PROFESSOR	Earth Sciences	B.A.	Princeton University	1990
			M.S.	University of Michigan	1993
			Ph.D.	University of Michigan	1997
Coffin, Jaed M	ASSISTANT PROFESSOR	English	B.A.	Middlebury College	2002
			M.F.A.	University of Southern Maine	2009
Cohn, Ellen S*	PROFESSOR	Psychology	B.A.	Clark University	1974
			M.A.	Temple University	1976
			Ph.D.	Temple University	1978
Colliander, John D	LECTURER	Accounting and Finance	B.A.	University of New Hampshire	1967
			M.A.	Lehigh University	1968
			J.D.	Boston University	1971
			LL.M.	Boston University	1975
Collins, John J*	ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Colgate University	1976

			Ph.D.	University of Wisconsin	1984
Collins, Karen E*	ASSOCIATE PROFESSOR	Kinesiology	B.A.	Princeton University	1994
			M.S.	University of New Hampshire	1998
			Ph.D.	University of North Carolina	2002
Collins, Michael Robin*	PROFESSOR	Civil and Environmental Engineering	B.S.	Virginia Polytechnic Institute and State University	1970
			M.S.	Virginia Polytechnic Institute and State University	1972
			Ph.D.	University of Arizona	1985
Conaway, Carol B	ASSOCIATE PROFESSOR	Women's Studies Program	A.B.	Bryn Mawr College	1970
			S.M.	Massachusetts Institute of Technology	1981
			Ph.D.	Massachusetts Institute of Technology	1994
Condon, Patricia B	CONTRACT LIBRARIAN	Scholarly Communication	M.A.	Univ of Southern Miss	2005
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			Ph.D.	Simmons College	2015
Congalton, Russell G*	PROFESSOR	Natural Resources & The Environment	B.S.	Rutgers University	1979
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Connell, James J*	ASSOCIATE PROFESSOR	Physics - Joint Positions	B.A.	Washington University - St Louis	1981
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			Ph.D.	Washington University - St Louis	1988
Connelly, Vincent J*	ASSOCIATE PROFESSOR	Education	B.A.	Loyola University - Maryland	1988
			M.S.Ed.	Johns Hopkins	1993

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Conroy, Andrew B	PROFESSOR	Thompson School of Applied Science		B.S.	University of New Hampshire	1986
				M.S.	Northwest Missouri State University	1987
				Ph.D.	University of New Hampshire	2001
Conway, Karen Smith*	PROFESSOR	Economics		B.A.	Eastern Illinois University	1982
				Ph.D.	University of North Carolina at Chapel Hill	1987
Cook, Jenni Carbaugh*	ASSOCIATE PROFESSOR	Music		B.M.	Bradley University	1995
				M.M.	University of Illinois at Urbana- Champaign	1997
				D.M.A.	University of Illinois at Urbana- Champaign	2001
Cook, Raymond A*	ASSOCIATE PROFESSOR	Civil and Environmental Engineering		A.B.	University of Illinois at Urbana- Champaign	1981
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				Ph.D.	Cornell University	1992
Cook, Summer B*	ASSOCIATE PROFESSOR	Kinesiology		B.S.	Syracuse University	1999
				M.S.	Syracuse University	2002
				Ph.D.	Syracuse University	2009
Coppens, Andrew D*	ASSISTANT PROFESSOR	Education		B.S.	University of New Hampshire	2004
				M.S.	University of California	2010
				Ph.D.	University of California	2015
Corcoran, Erin B	ASSOCIATE PROFESSOR	UNHL JD Instruction		J.D.	Georgetown University	2000
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		Molecular,				

Cote, Richard H*	PROFESSOR	Cellular, & Biomedical	B.S.	Tufts University	1974
			Ph.D.	University of Wisconsin	1980
Couse, Leslie J*	ASSOCIATE PROFESSOR	Education	B.S.Ed.	State University of New York at Cortland	1980
			M.S.Ed.	State University of New York at Brockport	1980
			M.Ed.	State University of New York at Brockport	1985
			M.S.	Russell Sage College	1993
Couser, Jonathan B	LECTURER	History	Ph.D.	Syracuse University	2001
			B.A.	Yale University	1992
			M.Div.	Yale University	1999
			M.A.	University of Notre Dame	2004
Cox, Patricia H	CLINICAL ASSISTANT PROFESSOR	Social Work	Ph.D.	University of Notre Dame	2006
			B.S.	Trinity College - Conn	1995
			M.S.Ed.	Bank St College of Ed	2000
Craig, Patricia J*	ASSOCIATE PROFESSOR	Recreation Management & Policy	M.S.W.	University of New Hampshire	2008
			B.S.	University of Scranton	1987
			M.Ed.	Temple University	1997
Croce, Ronald V*	PROFESSOR	Kinesiology	Ph.D.	University of New Hampshire	2010
			B.S.	Brooklyn College of the City University of New York	1973
			M.Ed.	Temple University	1975
Crosby, Peter R	LECTURER	Research, Learning, & Outreach Svcs	Ph.D.	University of New Mexico	1983
			B.A.	Keene State College (Nh)	1971
			AMLS	University of Michigan	1974
			A.A.S.	University of New	1977

				Hampshire	
Cross, Charlotte W	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Youth and Family	B.S.	University of Maine	1970
			M.S.	Oregon State University	1978
Crowley, Karen A	LECTURER	Nursing	B.A.	Duke University	1986
			M.S.	MGH Institute of Health Profes	1995
			Post-Master	University of New Hampshire	1996
Cullen, Kelly L*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.A.	Ithaca College	1992
			M.S.	West Virginia University	1996
			Ph.D.	Colorado State University	1999
Curran-Celentano, Joanne *	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Rutgers University	1976
			M.S.	Rutgers University	1978
			Ph.D.	University of Illinois at Urbana- Champaign	1982
Curren, Leslie J	LECTURER	Biological Sciences	B.A.	Amherst College	2005
			Ph.D.	Michigan State University	2012
Curry, Susan A	LECTURER	Classics, Humanities & Ital Studies	B.A.	Grinnell College	1998
			M.A.	University of Kansas	2001
			M.A.	Indiana University	2007
			Ph.D.	Indiana University	2009
Da Silva Belezza Correia Pinto, Fernando Bruno	LECTURER	Languages, Literatures, & Cultures	B.A.	University of Coimbra, Portugal	2005
			M.A.	University of Porto, Portugal	2009
			Ph.D.	University of Massachusetts - Dartmouth	2015
Daniel, Jo Sias*	PROFESSOR	Civil and Environmental Engineering	B.S.	University of New Hampshire	1994

			M.S.	North Carolina State University	1996
			Ph.D.	North Carolina State University	2001
Dave, Eshan V*	ASSISTANT PROFESSOR	Civil and Environmental Engineering	B.E.	Sardar Patel University, India	2001
			M.S.	University of Illinois at Urbana-Champaign	2003
			Ph.D.	University of Illinois at Urbana-Champaign	2009
Davis, Jennifer M	ASSOCIATE PROFESSOR	UNHL Graduate Instruction	B.A.	University of Massachusetts - Amherst	1990
			J.D.	Suffolk University	1996
Davis, John Matthew*	ASSOCIATE PROFESSOR	Earth Sciences	B.S.	Montana State University	1987
			M.S.	New Mexico Institute of Mining and Technology	1990
			Ph.D.	New Mexico Institute of Mining and Technology	1994
Davis, Thomas M*	PROFESSOR	Biological Sciences	B.S.	California Polytechnic State University - San Luis Obispo	1980
			Ph.D.	University of California - Davis	
Deen, Phillip D	SENIOR LECTURER	Humanities	B.A.	Texas A & M University	1994
			M.A.	Southern Illinois University - Carbondale	1996
			Ph.D.	Southern Illinois University - Carbondale	2004
Del Hierro, Marcos J	ASSISTANT PROFESSOR	English	B.A.	Baylor University	2006
			M.A.	El Paso Univ of Texas	2009
			Ph.D.	Texas A & M University	2014
DeMitchell, Todd A*	PROFESSOR	Education	B.A.	University of La Verne	1969

			M.A.T.	University of La Verne	1973
			Ed.D.	University of Southern California	1979
			M.A.	University of California - Davis	1990
Denis, Clyde L*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Illinois at Urbana-Champaign	1973
			M.S.	University of Washington	1976
			Ph.D.	University of Washington	1982
Deravi, Leila F*	ASSISTANT PROFESSOR	Chemistry	B.S.	University of Alabama	2005
			Ph.D.	Vanderbilt University	2009
DeSoye, Caitlin A	LECTURER	Accounting and Finance	J.D.	Suffolk University	2012
Desrosiers, Denise S	LECTURER	English	B.A.	Mount Holyoke College	2003
			M.A.	University of California - Los Angeles	2009
DeTurk, Mark S*	ASSOCIATE PROFESSOR	Music	B.S.E.	Princeton University	1972
			B.M.	University of Wisconsin	1975
			M.M.	Ohio State University	1982
			Ph.D.	University of Wisconsin	1988
deVries, Willem A	PROFESSOR	Philosophy	B.A.	Haverford College	1972
			M.A.	University of Pittsburgh	1975
			Ph.D.	University of Pittsburgh	1981
Di Filippo, Giuseppina	LECTURER	Classics, Humanities & Ital Studies	Laurea	University of L'Aquila, Italy	1999
			M.A.	Ateno Impresa, Italy	2002
			Ph.D.	University of Wisconsin - Madison	2012
Dibb, Jack E*	RESEARCH ASSOCIATE PROFESSOR	Earth Systems Research Center	B.S.	University of Puget Sound	1981
			Ph.D.	State University of New York at	1983

					Binghamton	
				M.A.	State University of New York at Binghamton	1988
Diefendorf, Jeffrey M*	PROFESSOR	History		A.B.	Stanford University	1967
				M.A.	University of California - Berkeley	1968
				Ph.D.	University of California - Berkeley	1975
Dijkstra, Semme J	LECTURER	Center for Coastal & Ocean Mapping		B.S.	Algemene Hogeschool Amsterdam	1990
				Ph.D.	University of New Brunswick	2000
Dillon, Ann E	CLINICAL ASSISTANT PROFESSOR	Institute on Disability		B.S.	University of New Hampshire	1975
				M.Ed.	University of New Hampshire	1998
Dillon, Michele M*	PROFESSOR	Sociology		M.Soc.Sci.	University College Dublin, Ireland	1983
				M.A.	University of California - Berkeley	1987
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				B.Soc.Sci.	University College Dublin, Ireland	1980
Dinapoli, Pamela P*	ASSOCIATE PROFESSOR	Nursing		B.S.N.	Thomas Jefferson University of	1981
				M.S.N.	University of Pennsylvania	1984
				Ph.D.	University of Massachusetts - Lowell	2000
Dobbins, Lori E*	PROFESSOR	Music		B.A.	San Jose State University	1980
				M.F.A.	California Institute of the Arts	1982
				Ph.D.	University of California - Berkeley	1990
Donahue, Ann Elizabeth*	ASSOCIATE PROFESSOR	Humanities		B.A.	University of New Hampshire	1994
				M.L.S.	Southern Connecticut State University	1995
				ALM	Harvard University	2005

Dorsey, Kurk *	PROFESSOR	History	B.A.	Cornell University	1987
			M.A.	Northwestern University	1989
			Ph.D.	Yale University	1994
Dorsey, Marion Girard*	ASSOCIATE PROFESSOR	History	B.A.	Stanford University	1993
			J.D.	Harvard University	1997
			M.Phil.	Yale University	2001
			Ph.D.	Yale University	2002
Dowd, Eleanne Solorzano*	ASSOCIATE PROFESSOR	Decisions Sciences	B.S.	University of Florida	1993
			M.S.	University of Florida	1995
			Ph.D.	University of South Carolina	1999
Dowd, Matthew J	LECTURER	Philosophy	B.A.	University of New Hampshire	1996
			M.A.	University of New Hampshire	1998
Draper, Nora R A	ASSISTANT PROFESSOR	Communication	B.P.A.	Carleton University	2007
			M.A.	Carleton University	2009
			M.A.	University of Pennsylvania	2011
			Ph.D.	University of Pennsylvania	2014
Drugan, Robert C*	PROFESSOR	Psychology	B.A.	Susquehanna University	1979
			M.A.	University of Colorado at Boulder	1981
			Ph.D.	University of Colorado at Boulder	1984
Drum, Charles E	DIRECTOR	Institute on Disability	B.S.	University of Oregon	1983
			M.S.	University of Oregon	1985
			J.D.	University of Oregon	1988
			Ph.D.	Brandeis University	1995
Drum, Monica R	RESEARCH ASSOCIATE PROFESSOR	Institute on Disability	B.A.	United States International University	1989
			M.S.	Virginia Polytechnic Institute and State University	1997
			Ph.D.	Tulane University	2001
		Art and Art			

Drumheller, Grant H*	PROFESSOR	History	B.F.A.	Boston University	1976
			M.F.A.	Boston University	1978
Druskat, Vanessa G U*	ASSOCIATE PROFESSOR	Management	B.A.	Indiana University - Bloomington	1982
			M.A.	Columbia University in the City of New York	1988
			Ph.D.	Boston University	1996
Drysdale, Alasdair Duncan	ASSOCIATE DEAN	Dean's Office - Liberal Arts	B.A.	University of Durham, United Kingdom	1971
			M.A.	University of Durham, United Kingdom	1972
			Ph.D.	University of Michigan	1977
Du, Shuili *	ASSISTANT PROFESSOR	Marketing	B.A.	Tsinghua Univ Beijing,China	1996
			M.A.	Fudan University, China	2002
			D.B.A	Boston University	2007
Dubnick, Melvin J*	PROFESSOR	Political Science	B.S.	Colorado State University	1968
			M.A.	University of Colorado at Boulder	1969
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Ducey, Mark J*	PROFESSOR	Natural Resources & The Environment	B.A.	Yale University	1990
			M.F.	Yale University	1992
			Ph.D.	Yale University	1996
Dudley, Kari L	LECTURER	Psychology	B.A.	University of New Hampshire	2000
			M.S.W.	Boston College	2002
			M.A.	University of New Hampshire	2010
			M.S.T.	University of New Hampshire	2013
			Ph.D.	University of New Hampshire	2013
Dunn, Joseph C	LECTURER	English	B.A.	University of New Hampshire	2003

			M.A.	University of New Hampshire	2007
Dunn, Meaghan C	LECTURER	English	B.A.	University of California - Santa Cruz	2000
			M.S.	University of Amsterdam, the Netherlands	2006
Durkis-Stokes, Jessica M	ASSOCIATE PROFESSOR	UNHL Graduate Instruction	B.A.	University of New Hampshire	2000
			J.D.	Vermont Law School, So Royalto	2004
Dusek, R Valentine	PROFESSOR	Philosophy	B.A.	Yale University	1963
			Ph.D.	University of Texas at Austin	1972
Dutta, Devkamal *	ASSOCIATE PROFESSOR	Management	B.Eng.	Birla Inst of Tech	1986
			Certificate	University of Western Ontario, Canada	1986
			M.A.F.	Indian Institute of Finance	1991
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Dwyer, Joseph Richard*	PROFESSOR	Physics - Joint Positions	B.S.	University of California	1986
			Ph.D.	University of Chicago	1994
			M.S.	University of Chicago	1998
Earle, Andrew G*	ASSISTANT PROFESSOR	Management	B.A.	Western Washington University	2002
			M.A.	Washington State University	2006
			M.B.A.	University of Oregon	2008
Earle, Sarah E	LECTURER	English	B.A.	Concordia University, Montreal,	2005
Eastwood, Megan M	ASSISTANT PROFESSOR	Library Administration			
Eaton, Alan T*	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Food and Agriculture	B.S.	University of Massachusetts - Amherst	1972
			M.S.	Virginia Polytechnic Institute and State University	1975
			Ph.D.	North Carolina State University	1978
Echt, Olof E*	PROFESSOR	Physics	Diploma	Free University of	1975

			Ph.D.	Berlin, Germany	
			University of Konstanz, Germany	1979	
Eckstein, Robert P	SENIOR LECTURER	Justice Studies Program	B.A.	City University of New York	1998
			M.S.	Loyola University - Maryland	2000
Edwards, Katie M*	ASSISTANT PROFESSOR	Psychology	B.S.	Athens State University	2005
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Elmslie, Bruce T*	PROFESSOR	Economics	B.S.	Westminster College - Utah	1983
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Emison, Patricia A*	PROFESSOR	Art and Art History	B.A.	Bryn Mawr College	1978
			M.A.	Columbia University in the City of New York	1980
			M.Phil.	Columbia University in the City of New York	1982
			Ph.D.	Columbia University in the City of New York	1985
Endrizzi, Susan I	LECTURER	Theatre & Dance	B.F.A.	Butler University	1994
England, Richard W*	PROFESSOR	Economics	B.A.	Oakland University	1965
			M.A.	University of Michigan	1967
			Ph.D.	University of Michigan	1974
Erickson, Peter S*	PROFESSOR	Biological Sciences	B.S.	University of Massachusetts - Amherst	1982
			M.S.	University of Maine	1984
			Ph.D.	University of Illinois	1989
Eshbach, Robert W*	ASSOCIATE PROFESSOR	Music	B.A.	Yale University	1973
			M.M.	The New England Conservatory of Music	1976
Etebari, Ahmad *	PROFESSOR	Accounting and Finance	B.B.A.	Teheran Business College, Iran	1973
			M.B.A.	Texas A & M University	1975

			Ph.D.	University of North Texas	1979
Evans, Elizabeth J*	CLINICAL ASSISTANT PROFESSOR	Nursing	B.S.	University of New Hampshire	2002
			M.S.	University of New Hampshire	2004
Evans, Risa	ASSOCIATE PROFESSOR	UNHL JD Instruction	B.A.	Barnard College	1986
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Exline, Eleta C	ASSOCIATE PROFESSOR	Library Administration	B.A.	Smith College	1995
			C.A.S.	Syracuse University	2005
			M.S.	Syracuse University	2005
			M.A.	University of New Hampshire	2014
Fagerberg, Wayne R*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Wyoming	1967
			M.A.	University of South Florida	1972
			Ph.D.	University of South Florida	1975
Fairchild, Elizabeth A*	RESEARCH ASSISTANT PROFESSOR	Biological Sciences	B.A.	University of New Hampshire	1991
			M.S.	University of New Hampshire	1998
			Ph.D.	University of New Hampshire	2002
Farrell, James M	PROFESSOR	Communication	B.A.	Bridgewater State University	1979
			M.A.	University of Maine	1982
			Ph.D.	University of Wisconsin - Madison	1988
Farrugia, Charles J*	RESEARCH PROFESSOR	Space Science Center	B.S.	University of Malta	1966
			Diploma	University of London, United Kingdom	1978
			M.S.	University of Bern, Switzerland	1978
			Diploma	University of Munich, Germany	1982
			Ph.D.	University of Bern, Switzerland	1984

Feintuch, Burt *	PROFESSOR	Center for the Humanities	B.A.	Pennsylvania State University	1971
			M.A.	University of Pennsylvania	1972
			Ph.D.	University of Pennsylvania	1975
Feldman, David V*	ASSOCIATE PROFESSOR	Mathematics & Statistics	B.A.	Yale University	1977
			Ph.D.	Wesleyan University	1987
Fensom, Gail A	ASSOCIATE PROFESSOR	Humanities	B.A.	University of Rhode Island	1970
			M.A.	Oklahoma State University	1973
			Ph.D.	University of New Hampshire	2007
Ferber, Michael K*	PROFESSOR	English	B.A.	Swarthmore College	1966
			M.A.	Harvard University	1969
			Ph.D.	Harvard University	1975
Ferrara, Michael *	DEAN	Dean's Office - Health & Human Svcs	B.S.	Ithaca College	1980
			M.A.	Michigan State University	1983
			Ph.D.	Pennsylvania State University	1990
Fertik, Harriet H	ASSISTANT PROFESSOR	Classics, Humanities & Ital Studies	B.A.	University of Chicago	2008
			Ph.D.	University of Michigan	2014
Fetzer, Susan Jane*	PROFESSOR	Nursing	B.A.	University of Connecticut	1973
			B.S.N.	University of Connecticut	1975
			M.S.N.	University of Alabama	1979
			M.B.A.	Southern New Hampshire University	1990
			Ph.D.	Adelphi University	1998
Finkelhor, David *	PROFESSOR	Sociology	B.A.	Harvard University	1968
			M.Ed.	Harvard University	1971
			Ph.D.	University of New Hampshire	1978

Fischer, Shawna M*	ASSISTANT PROFESSOR	Physics	B.S.	Occidental College	2005
			M.S.	Brown University	2008
Fisher, Carol J	PRINCIPAL LECTURER	Theatre & Dance	B.A.	University of South Florida	1979
			M.A.	Arizona State University	1981
Fitch, Nathan F	LECTURER	Kinesiology	B.A.	Union College - New York	1993
			B.S.	University of New Hampshire	1998
			M.S.	University of New Hampshire	2007
Fitzpatrick, Ellen F*	PROFESSOR	History	B.A.	Hampshire College	1974
			Ph.D.	Brandeis University	1981
Fjelstad, Per E	LECTURER	Communication	B.A.	The Evergreen State College, O	1984
			M.A.	University of Washington	1989
			Ph.D.	Pennsylvania State University	1995
Fleese, Kelly S	LECTURER	Communications Disorders	B.A.	Springfield College	1995
			M.S.	Assumption College	2005
Fleese, Kevin J	SENIOR LECTURER	Communications Disorders	B.S.	Gallaudet University	1980
			B.A.	Gallaudet University	1985
			M.Ed.	Boston University	1997
Flesher, Kenneth L	PROFESSOR	Thompson School of Applied Science	B.S.	University of Pittsburgh	1981
			M.S.	University of New Hampshire	1994
Flippo, Tara R	CLINICAL ASSISTANT PROFESSOR	Kinesiology	B.A.	Hampshire College	1994
			M.A.	Vermont College of Fine Arts	2000
Ford, Roger A	ASSISTANT PROFESSOR	UNHL JD Instruction	S.B.	Massachusetts Institute of Technology	2002
			J.D.	University of Chicago	2005
Foreman, Maria C	RESEARCH ASSISTANT PROFESSOR	Earth Systems Research Center	B.S.	University of Philippines	2005
				University of Illinois	

			Ph.D.	at Urbana-Champaign	2014
			M.S.	Michigan State University	2009
Foster, Diane L*	PROFESSOR	Mechanical Engineering	B.S.	University of Massachusetts - Amherst	1989
			M.S.	University of Maine	1991
			Ph.D.	Oregon State University	1996
Foster, Jeffrey T*	ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Northwestern University	1995
			Ph.D.	University of Illinois	2005
Fowler, Benjamin P	ASSOCIATE PROFESSOR	Thompson School of Applied Science	B.A.	Campus Free College, Boston	1976
			M.B.A.	University of New Hampshire	1978
			C.A.G.S.	University of New Hampshire	1993
Fox, Nicole S*	ASSISTANT PROFESSOR	Sociology	Ph.D.	Brandeis University	2004
			B.A.	University of California	2005
			M.A.	State University of New York at Buffalo	2008
Fox, Richard D	LECTURER	Art and Art History	B.F.A.	University of Massachusetts - Amherst	1990
			M.F.A.	Mass College of Art	1994
Fox, Susan W	CLINICAL ASSISTANT PROFESSOR	Institute on Disability	B.S.	University of Massachusetts - Amherst	1977
			M.A.	University of New Hampshire	1981
			M.S.	Lesley College	1981
Foxall, Thomas L*	PROFESSOR	Biological Sciences	B.S.	Lebanon Valley College	1968
			M.S.	University of Bridgeport	1977
			Ph.D.	University of New Hampshire	1980
Franczak, Jennifer L*	ASSISTANT PROFESSOR	Management	B.S.	Bradley University	2006
			M.B.A.	Bradley University	2009

			Ph.D.	Southern Illinois University - Carbondale	2013
Frank, Johannes T	PRINCIPAL LECTURER	Languages, Literatures, & Cultures	Staatsexamen	Free University of Berlin, Germany	1974
			M.A.	University of Wisconsin - Madison	1985
Frankel, Barbara R*	ASSOCIATE PROFESSOR	Human Development & Family Studies	B.A.	University of Wisconsin	1970
			M.S.	University of Louisville	1976
Freedman, Diane P*	PROFESSOR	English	Ph.D.	Purdue University	1988
			A.B.	Cornell University	1977
			M.A.T.	Cornell University	1978
			M.A.	Boston University	1982
			Ph.D.	University of Washington	1989
French, Charles A*	TEAM LEADER	Community and Economic Development	B.A.	Dartmouth College	1994
			M.A.	Western Illinois University	1999
			Ph.D.	University of New Hampshire	2008
Frerking, Christopher J	LAW PROFESSOR	UNHL JD Instruction	B.S.	University of California - Riverside	1988
			M.S.	University of California - Davis	1990
			J.D.	Santa Clara University	1999
			LL.M.	University of Cambridge, Engla	2006
Frey, Serita D*	PROFESSOR	Natural Resources & The Environment	B.A.	University of Virginia	1988
			M.S.	University of Virginia	1992
			Ph.D.	Colorado State University	1999
Friedman, Mary Adamo	SENIOR LECTURER	Natural Resources & The Environment	B.S.	Western Illinois University	1981
			M.S.	University of Illinois	1990

			Ph.D.	University of New Hampshire	2010
Frierson, Cathy A*	PROFESSOR	History	B.A.	University of North Carolina at Chapel Hill	1975
			A.M.	Harvard University	1978
			Ph.D.	Harvard University	1985
Frolking, Stephen E*	RESEARCH PROFESSOR	Earth Systems Research Center	B.S.	University of New Hampshire	1980
			Ph.D.	University of New Hampshire	1983
			M.S.	University of New Hampshire	1993
Frye, Jennifer M	CLINICAL ASSISTANT PROFESSOR	Recreation Management & Policy	B.S.	University of Southern Maine	2001
			Certificate	University of Southern Maine	2003
			M.S.	University of Southern Maine	2005
Fu, Tat S*	ASSISTANT PROFESSOR	Civil and Environmental Engineering	B.S.	University of Southern California	2003
			M.S.	University of Southern California	2004
			M.S.	University of Southern California	2006
			M.B.S.	University of Southern California	2007
			Ph.D.	University of Southern California	2009
Fuld, Kenneth *	DEAN	Dean's Office - Liberal Arts	B.A.	Northeastern University	1971
			Ph.D.	Dartmouth College	1976
Fussell, Barry K*	PROFESSOR	Mechanical Engineering	B.S.	Ohio State University	1975
			M.S.	Ohio State University	1980
			Ph.D.	Ohio State University	1987
Galvin, Antoinette B*	RESEARCH PROFESSOR	Space Science Center	B.S.	Purdue University	1974
			Ph.D.	University of Maryland	1976
			M.S.	University of Maryland	1982

Gamtso, Carolyn B	ASSOCIATE PROFESSOR	UNHM Degree Programs	B.A.	Coll of The Holy Cross	1989
			M.A.	Indiana University	1991
Gangi, Mariagabriella	LECTURER	Classics, Humanities & Ital Studies	M.A.	Naples Eastern University, Italy	1996
Garcia-Rasilla, Carmen *	ASSOCIATE PROFESSOR	Languages, Literatures, & Cultures	Licence	Universidad de Valladolid, Spain	1985
			Ph.D.	Universidad de Valladolid, Spain	1990
			M.A.	Johns Hopkins University	1991
			Ph.D.	Johns Hopkins University	1997
Gardner, James V*	RESEARCH PROFESSOR	Center for Coastal & Ocean Mapping	B.S.	San Diego State Univ	1967
			M.A.	Columbia University in the City of New York	1969
			Ph.D.	Columbia University in the City of New York	1973
Gardner, Kevin H*	PROFESSOR	Civil and Environmental Engineering	B.S.	Union College	1989
			M.S.	Clarkson University	1991
			Ph.D.	Clarkson University	1996
Garland, Virginia E*	ASSOCIATE PROFESSOR	Education	B.A.	University of South Carolina	1969
			M.A.T.	Harvard University	1972
			Ph.D.	University of Connecticut	1981
Garofalo, Piero	ASSOCIATE PROFESSOR	Classics, Humanities & Ital Studies	B.A.	University of Wisconsin - Madison	1988
			M.A.	University of California - Berkeley	1991
			Ph.D.	University of California - Berkeley	1996
Garvey, John B	LAW PROFESSOR	UNHL Daniel Webster Scholars Progra	A.B.	Harvard University	1974
			J.D.	Suffolk University	1978

Gass, Michael A*	PROFESSOR	Kinesiology	B.A.	St. Olaf College	1978
			M.A.	Colorado State University	1979
			Ph.D.	University of Colorado at Boulder	1986
Gaudissart, Claire-Helene S	PRINCIPAL LECTURER	Languages, Literatures, & Cultures	D.E.U.G.	University of Paris IV Sorbonne, France	1985
			B.A.	University of Reims, France	1986
			M.A.	University of Reims, France	1988
Ge, Liming *	PROFESSOR	Mathematics & Statistics	B.S.	Beijing University, China	1984
			M.S.	Qufu Normal University, China	1987
			Ph.D.	University of Pennsylvania	1995
Gerard, Jeanne G	LECTURER	UNHM Degree Programs	B.A.	University of Massachusetts - Amherst	1972
			M.S.	Bank St College of Ed	1976
			M.S.	University at Albany	
Germaschewski, Kai K*	ASSOCIATE PROFESSOR	Physics - Joint Positions	Diploma	Heinrich Heine University Düsseldorf, Germany	1998
			Ph.D.	Heinrich Heine University Düsseldorf, Germany	2001
Ghayoomi, Majid *	ASSISTANT PROFESSOR	Civil and Environmental Engineering	B.S.	University of Tehran, Iran	2004
			M.S.	Shariff University of Technology, Iran	2006
			Ph.D.	University of Colorado at Boulder	2011
Gibbons, Kimberly C	CLINICAL ASSISTANT PROFESSOR	Nursing	B.S.N.	Saint Anselm'S College	1993
			M.S.	Univ of Minnesota-Minneapolis	1998
Gibson, Brett M*	ASSOCIATE PROFESSOR	Psychology	B.A.	University of Minnesota	1991
			M.S.	Bucknell University University of	1995

			Ph.D.	Nebraska	1999
Gibson, John F*	ASSISTANT PROFESSOR	Mathematics & Statistics	B.A.	St. John's College	1988
			Ph.D.	Cornell University	2002
Gilbert, Joseph P	LECTURER	English as a Second Language	B.A.	University of New Hampshire	2006
			M.F.A.	University of New Hampshire	2013
Gildersleeve, A Michael	LECTURER	Computer Science	B.A.	Dartmouth College	1989
			M.S.	University of New Hampshire	2002
Gillespie, Maureen	LECTURER	Psychology	B.A.	University of New Hampshire	2006
			M.A.	Northeastern University	2008
			Ph.D.	Northeastern University	2011
Gingras, Rene J	PROFESSOR	Thompson School of Applied Science	B.S.	University of New Hampshire	1975
			M.S.	Virginia Polytechnic Institute and State University	1997
Giordano, Jennifer A	ASSOCIATE PROFESSOR	Library Administration	B.A.	University of New Hampshire	1991
			M.L.S.	Simmons College	1998
			M.B.A.	University of New Hampshire	2005
Girdner, Shelley R	PRINCIPAL LECTURER	English	B.A.	University of Virginia	1997
			M.A.	University of New Hampshire	2000
Gittell, Ross J*	PROFESSOR	Management	A.B.	University of Chicago	1979
			M.B.A.	University of California - Berkeley	1981
			Ph.D.	Harvard University	1989
Glass, Christopher *	RESEARCH PROFESSOR	Ocean Process Analysis Lab	B.S.	Queen's University, Belfast	1979
			Ph.D.	University of Glasgow, United Kingdom	1985
Glauber, Rebecca K*	ASSOCIATE PROFESSOR	Sociology	B.A.	University of Massachusetts -	2000

				Amherst	
			M.A.	New York University	2005
			Ph.D.	New York University	2007
Glutting, Joan H	CLINICAL ASSOCIATE PROFESSOR	Psychology	B.A.	University of New Hampshire	1987
			M.A.	Vanderbilt University	1993
			Ph.D.	Vanderbilt University	1995
Goethals, Jessica L	LECTURER	Classics, Humanities & Ital Studies	B.A.	Northwestern University	2003
			M.A.	New York University	2007
			Ph.D.	New York University	2012
Gold, Janet N*	PROFESSOR	Languages, Literatures, & Cultures	B.A.	Albertus Magnus College	1971
			M.Ed.	Worcester State College	1981
			Ph.D.	University of Massachusetts - Amherst	1990
Goldberg, Michael D*	PROFESSOR	Economics	B.S.	Lehigh University	1980
			Ph.D.	New York University	1991
Golinski, Jan V*	PROFESSOR	History	B.A.	Cambridge University, England	1979
			M.A.	Cambridge University, England	1983
			Ph.D.	University of Leeds, United Kingdom	1984
Goodspeed, Charles H*	ASSOCIATE PROFESSOR	Civil and Environmental Engineering	B.S.C.E.	Worcester Polytechnic Institute	1967
			M.S.C.E.	Worcester Polytechnic Institute	1969
			Ph.D.	University of Cincinnati	1972
Goodwin, Casey S	SENIOR LECTURER	Music	B.M.	University of New Hampshire	2001
			M.A.	University of New Hampshire	2006
Gordon, Kiernan O*	ASSISTANT PROFESSOR	Kinesiology	B.A.	University of California - Santa Cruz	2005
			M.S.	High Point College	2007

			Ph.D.	Ohio State University	2013
Gottel, Debra A	CLINICAL ASSISTANT PROFESSOR	Nursing	M.H.S.	Keene State College (Nh)	1990
			M.S.N.	Western Governor's University	2012
Gottwald, Sheryl R*	CLINICAL ASSISTANT PROFESSOR	Communications Disorders	B.S.	Northeastern University	1976
			M.S.	Pennsylvania State University	1977
Gough, Robert A	LECTURER	Management	Ph.D.	Temple University	1990
			A.B.	Bates College	1968
			M.A.	Duke University	1971
Gould, Eliga H*	PROFESSOR	History	Ph.D.	Duke University	1975
			A.B.	Princeton University	1983
			M.Sc.	University of Edinburgh, United Kingdom	1987
			M.A.	Johns Hopkins University	1988
Graham, Karen J*	PROFESSOR	Mathematics & Statistics	Ph.D.	Johns Hopkins University	1993
			B.A.	State University of New York at Cortland	1975
			M.S.	University of New Hampshire	1983
			M.A.	State University of New York at Cortland	1986
Graham, Suzanne E*	ASSOCIATE PROFESSOR	Education	Ph.D.	University of New Hampshire	1986
			B.S.	Brown University	1985
			Ed.M.	Harvard University	1990
			Ed.D.	Harvard University	1997
Grandy, Andrew Stuart*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	The Evergreen State College, O	1995
			M.S.	University of Maine	1998
			Ph.D.	Michigan State University	2005
Gravink, Jill K	CLINICAL ASSISTANT PROFESSOR	Recreation Management & Policy	M.S.	University of New Hampshire	2007
			B.S.	University of New Hampshire	

Greabe, John M	PROFESSOR	UNHL JD Instruction	B.A.	Dartmouth College	1985
			J.D.	Harvard Law School	1988
Greenberg, Arthur *	PROFESSOR	Chemistry	B.S.	Fairleigh Dickinson University	1967
			M.A.	Princeton University	1970
			Ph.D.	Princeton University	1971
Greenslade, Margaret E*	ASSOCIATE PROFESSOR	Chemistry	B.A.	Bryn Mawr College	1998
			Ph.D.	University of Pennsylvania	2005
Grenier, Michelle A*	ASSOCIATE PROFESSOR	Kinesiology	B.S.	University of Massachusetts - Amherst	1978
			M.S.	University of New Hampshire	1995
			Ph.D.	University of New Hampshire	2004
Grimm, Curt D*	RESEARCH ASSOCIATE PROFESSOR	Carsey School	B.A.	University of New Hampshire	1979
			M.A.	State University of New York at Binghamton	1985
			Ph.D.	State University of New York at Binghamton	1991
Grinde, Roger B*	ASSOCIATE PROFESSOR	Decisions Sciences	B.A.	Carroll College	1984
			M.S.	Oregon State University	1986
			Ph.D.	Pennsylvania State University	1993
Griswold, Lou Ann *	ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	Colorado State University	1979
			M.S.	Colorado State University	1986
			Ph.D.	University of New Hampshire	1995
Grizzle, Raymond Edward*	RESEARCH PROFESSOR	Biological Sciences	B.S.	Florida State University	1972
			M.S.	University of Central Florida,	1981
			Ph.D.	Rutgers University	1988
Gross, Todd Stuart*	PROFESSOR	Mechanical Engineering	B.S.	Carnegie Mellon University	1975

			Ph.D.	Northwestern University	1981
Gruen, Thomas W*	PROFESSOR	Marketing	B.A.	Gordon College	1977
			M.B.A.	Indiana University	1980
			M.S.	Indiana University	1995
			M.A.	Gordon College	1997
			Ph.D.	Indiana University	1997
Grunkemeyer, Vanessa L	LECTURER	Biological Sciences	D.V.M.	Cornell University	2007
Guerdat, Todd C*	ASSISTANT PROFESSOR	Biological Sciences	B.S.	University of North Carolina	1999
			M.S.	North Carolina State University	2008
			Ph.D.	North Carolina State University	2012
Gullace, Nicoletta F*	ASSOCIATE PROFESSOR	History	B.A.	University of Rochester	1983
			M.A.	University of California - Berkeley	1987
			Ph.D.	University of California - Berkeley	1993
Gullion, Laurie	CLINICAL ASSOCIATE PROFESSOR	Kinesiology	B.S.	University of Massachusetts - Amherst	1976
			M.S.	University of Massachusetts - Amherst	1991
Gumprecht, Blake	ASSOCIATE PROFESSOR	Geography	B.S.	University of Kansas	1983
			M.L.I.S.	Louisiana State University	1990
			M.A.	University of California - Los Angeles	1995
			Ph.D.	University of Oklahoma	2000
Gunlogson, Elizabeth M*	ASSOCIATE PROFESSOR	Music	B.A.	Luther College	1993
			M.M.	Indiana University	1996
			D.M.	Florida State University	2006
Guo, Lin *	ASSISTANT PROFESSOR	Marketing	M.A.	Renmin University of China	1995
			Ph.D.	University of Arizona	2010
Gupta, Nivedita Ranbir*	ASSOCIATE PROFESSOR	Chemical	B.S.E.T.	Indian Institutes of	1993

		Engineering		Technology, India	
			Ph.D.	Pennsylvania State University	1999
Guyette, Julienne M	LECTURER	Thompson School of Applied Science	A.S.	Culinary Institute of America	1990
			B.S.	University of Maine	1997
			M.Ed.	Plymouth State University	2015
Gwebu, Kholekile L*	ASSOCIATE PROFESSOR	Decisions Sciences	B.S.	National University of Lesotho, South Africa	1998
			M.B.A.	Kent State University	2002
			Ph.D.	Kent State University	2006
Hackett, Robin Michelle*	ASSOCIATE PROFESSOR	English	B.A.	University of California - Davis	1986
			M.A.	Sonoma State University	1993
			Ph.D.	City University of New York	2000
Hadwin, Donald W*	PROFESSOR	Mathematics & Statistics	B.S.	Michigan State University	1967
			M.A.	University of Wisconsin	1968
			Ph.D.	Indiana University - Purdue University Fort Wayne	1975
Haines, Thomas W*	ASSISTANT PROFESSOR	English	B.A.	Dartmouth College	1990
			M.J.	University of California - Berkeley	1994
			Ph.D.	University of New Hampshire	1994
Hale, Iago L*	ASSISTANT PROFESSOR	Biological Sciences	B.A.	Dartmouth College	1997
			M.S.	University of California - Davis	2007
			Ph.D.	University of California - Davis	2011
Hall, Carrie L*	ASSISTANT PROFESSOR	Biological Sciences	A.A.	Community College of the Air Force	2002
			B.S.	Univ of Tulsa	2006
			M.S.	Univ of Tulsa	2008
			Ph.D.	Idaho State University	2011

			Ph.D.	Univ of Tulsa	2011
Halpern, Jeffrey M*	ASSISTANT PROFESSOR	Chemical Engineering	B.S.	Case Western Reserve University	2003
			Ph.D.	Case Western Reserve University	2010
Halpin, Patricia A	ASSISTANT PROFESSOR	Natural & Social Sciences	B.S.	Old Dominion University	1983
			M.S.	University of Connecticut	1995
			Ph.D.	University of Connecticut	1996
Halstead, John M*	PROFESSOR	Natural Resources & The Environment	B.A.	University of Notre Dame	1976
			M.S.	University of Massachusetts - Amherst	1981
			Ph.D.	Virginia Polytechnic Institute and State University	1989
Hambacher, Elyse L*	ASSISTANT PROFESSOR	Education	B.A.	University of Florida	2005
			M.A.	Columbia University in the City of New York	2006
			Ph.D.	University of Florida	2013
Hamilton, Lawrence C*	PROFESSOR	Sociology	B.A.	University of California - Santa Barbara	1970
			M.A.	University of Colorado at Boulder	1974
			Ph.D.	University of Colorado at Boulder	1978
Haney, James F*	PROFESSOR	Biological Sciences	A.B.	Miami University - Ohio	1961
			M.A.	Miami University - Ohio	1963
			Ph.D.	University of Toronto, Canada	1970
Harkless, Gene E*	ASSOCIATE PROFESSOR	Nursing	B.S.N.	Duke University	1976
			M.S.N.	Vanderbilt University	1980
			D.N.Sc.	Boston University	1991
Harper, Valerie L	ASSOCIATE PROFESSOR	Reference	B.A.	University of Rhode Island	1980
			M.S.	Simmons College	1982

			M.A.	Northeastern University	1990
Harris, Benjamin *	PROFESSOR	Psychology	B.A.	Hampshire College	1971
			M.A.	Vanderbilt University	1973
			Ph.D.	Vanderbilt University	1975
Harris, J William*	PROFESSOR	History	B.S.	Massachusetts Institute of Technology	1968
			M.A.	Johns Hopkins University	1976
			Ph.D.	Johns Hopkins University	1982
Harris, Larry *	PROFESSOR	Biological Sciences	B.A.	University of California - Berkeley	1965
			Ph.D.	University of California - Berkeley	1970
Harrison, Keith M	PROFESSOR	UNHL JD Instruction	B.A.	St. John's College	1977
			J.D.	University of Chicago	1981
Harrison-Buck, Eleanor	ASSOCIATE PROFESSOR	Anthropology	B.S.	Skidmore College	1994
			M.A.	Boston University	2001
			Ph.D.	Boston University	2007
Hartman, Cindy L*	ASSISTANT PROFESSOR	Recreation Management & Policy	M.S.	Clemson University	2011
			B.S.	Texas A & M University	
			Ph.D.	Clemson University	
Hartt, S. Allen *	ASSISTANT PROFESSOR	Accounting and Finance	B.A.	Mcgill University Canada	1993
			M.P.A.	Indiana University - Bloomington	1995
			M.S.	Bentley College	2008
			Ph.D.	Bentley College	2015
Harvey, N Paul *	ASSOCIATE PROFESSOR	Management	B.S.	University of Connecticut	2000
			M.B.A.	State University of New York at Binghamton	2002
			Ph.D.	Florida State University	2006
Harzewski, Stephanie	LECTURER	English	B.A.	Vassar College	1996
			M.A.	Rutgers University	1998

			Ph.D.	University of Pennsylvania	2006
Haskins, Robert C*	ASSOCIATE PROFESSOR	Music	B.M.	Johns Hopkins University	1982
			M.M.	Johns Hopkins University	1984
			Diploma	Guildhall School M&D, London	1986
			M.M.	Johns Hopkins University	1992
			M.A.	University of Rochester	1996
			D.M.A.	University of Rochester	1997
			Ph.D.	University of Rochester	2004
Hasseldine, David J*	PROFESSOR	Accounting and Finance	B.S.	University of Canterbury, New Zealand	1985
			M.S.	University of Canterbury, New Zealand	1987
Hassey, William A	LECTURER	Management	Ph.D.	Indiana University	1997
			B.S.	Univ of Lowell	1966
			M.S.	Keene State College (Nh)	1973
Hatcher, Philip John*	PROFESSOR	Computer Science	Ed.D.	Boston University	1979
			B.S.	Purdue University	1978
			M.S.	Purdue University	1979
			Ph.D.	Illinois Institute of Technology	1985
Hausner, Alejandro	LECTURER	Computer Science	B.S.	Mcgill University Canada	1988
			M.S.	Mcgill University Canada	1991
			M.S.	Queen'S University (Ca)	1993
Healey, Kevin	ASSISTANT PROFESSOR	Communication	Ph.D.	Brown University	2013
			B.A.	Drew University	1996
			M.A.	The New School	2005
			Ph.D.	University of Illinois at Urbana-	2011

				Champaign	
Heath, Renee G	LECTURER	Communication	B.S.	Oregon State University	1990
			M.A.	Washington State University	1997
			Ph.D.	University of Colorado at Boulder	2005
Hebbard, Elizabeth K	LECTURER	Languages, Literatures, & Cultures	B.A.	University of Georgia	2007
			B.M.	University of Georgia	2007
			M.A.	Yale University	2011
			M.Phil.	Yale University	2011
Heckman, Meghan A	LECTURER	English	B.A.	University of New Hampshire	2001
			M.A.	Northeastern University	2013
Hegarty, Charles B*	ASSISTANT PROFESSOR	Recreation Management & Policy	B.A.	Denison University	1978
			M.S.	Indiana University	1979
			Ph.D.	Indiana University	2008
Hemstock, Thomas E	SENIOR LECTURER	UNHL Library	B.A.	Central Connecticut State Univ	2003
			J.D.	University of Connecticut	2007
			M.L.S.	Southern Connecticut State University	2007
Henn, Mark J	PRINCIPAL LECTURER	Psychology	B.A.	Coll of Wooster	1983
			M.A.	University of New Hampshire	1986
			Ph.D.	University of New Hampshire	1993
Hennessey, Barry J	ASSOCIATE PROFESSOR	Technical Services	A.B.	University of Wisconsin	1967
			Ph.D.	Harvard University	1972
			M.L.S.	Simmons College	1974
Henny, Karen N	LECTURER	Kinesiology	B.S.	University of New Hampshire	1988
			A.S.	N H Technical Inst	1993
Henry, Robert M*	ASSOCIATE PROFESSOR	Civil and Environmental	B.S.	University of Pennsylvania	1973

		Engineering			
			M.S.	University of Pennsylvania	1974
			Ph.D.	University of Pennsylvania	1980
Hepp, Ellen M	LECTURER	Computer Science	B.A.	University of New Hampshire	1977
			M.S.	University of New Hampshire	1995
Herold, Marc W*	ASSOCIATE PROFESSOR	Economics	B.A.	University of Zurich, Switzerland	1962
			M.B.A.	Swiss Federal Institute of Technology, Switzerland	1967
			M.B.A.	University of California - Berkeley	1970
			Ph.D.	University of California - Berkeley	1977
Hersman, F William*	PROFESSOR	Physics	B.S.	University of Cincinnati	1977
			Ph.D.	Massachusetts Institute of Technology	1982
Hertz, Susan M*	ASSOCIATE PROFESSOR	English	B.A.	University of New Hampshire	1978
Hibschweiler, Rita A*	PROFESSOR	Mathematics & Statistics	B.A.	State University of New York at Buffalo	1979
			M.A.	State University of New York at Buffalo	1981
			Ph.D.	University at Albany	1988
Hiller, Marc D*	ASSOCIATE PROFESSOR	Health Management & Policy	B.S.	University of Pittsburgh	1972
			M.P.H.	University of Pittsburgh	1974
			Ph.D.	University of Pittsburgh	1978
Hinson, Edward K*	ASSOCIATE PROFESSOR	Mathematics & Statistics	B.S.	University of Florida	1979
			M.S.	Northwestern University	1982
			Ph.D.	Northwestern University	1985
		Languages,		University of	

Hirsch, Sarah E	LECTURER	Literatures, & Cultures	B.A.	Massachusetts - Boston	1982
			M.S.T.	University of New Hampshire	1992
			M.A.	University of New Hampshire	2004
Hobbie, Erik A*	RESEARCH PROFESSOR	Earth Systems Research Center	B.S.	Yale University	1987
			M.S.	University of Virginia	1994
			Ph.D.	University of Virginia	1997
Holcombe, Julee Ann	ASSOCIATE PROFESSOR	Art and Art History	B.F.A.	University of New Mexico	1998
			M.F.A.	Maryland Institute	2004
Hollis, Eileen H	CLINICAL ASSISTANT PROFESSOR	Nursing	M.S.	University of New Hampshire	2010
Holtrop, Maurik W*	PROFESSOR	Physics	B.S.	University of New Hampshire	1987
			Ph.D.	Massachusetts Institute of Technology	1995
Honwad, Sameer V*	ASSISTANT PROFESSOR	Education	B.A.	Pune Univ Dehradun India	1997
			Ph.D.	Pennsylvania State University	2010
Hood, Craig A*	PROFESSOR	Art and Art History	B.A.	Boston University	1975
			B.A.	Pennsylvania State University	1979
			M.F.A.	Indiana University - Bloomington	1981
Hopkins, Lori J*	ASSOCIATE PROFESSOR	Languages, Literatures, & Cultures	B.A.	University of Virginia	1984
			M.A.	University of Wisconsin - Madison	1987
			Ph.D.	University of Wisconsin - Madison	1993
Horne, Susan E	LECTURER	Decisions Sciences	B.S.	University of Massachusetts - Amherst	1981
			M.B.A.	Babson College	1990
			Ph.D.	Kent State University	2010
Houtenville, Andrew James*	ASSOCIATE PROFESSOR	Economics Dept-Shared Position	B.A.	Richard Stockton College	1988

			M.A.	University of New Hampshire	1991
			Ph.D.	University of New Hampshire	1997
Howard, Daniel R*	ASSISTANT PROFESSOR	Biological Sciences	A.A.	Coll of The Sequoias	1999
			M.S.	Northeastern State University	2004
			Ph.D.	Univ of Tulsa	2007
Howard, Theodore E*	ASSOCIATE DEAN	Dean's Office - LS & A	B.S.	University of Maine	1972
			M.F.	Duke University	1974
			Ph.D.	Oregon State University	1982
Howell, William H*	PROFESSOR	Biological Sciences	B.A.	Otterbein College	1969
			M.S.	University of Rhode Island	1975
			Ph.D.	University of Rhode Island	1980
Howey, Meghan L	ASSOCIATE PROFESSOR	Anthropology	B.A.	University of Delaware	2000
			M.A.	University of Michigan	2002
			Ph.D.	University of Michigan	2006
Howland, David	SENIOR LECTURER	English	B.A.	Pennsylvania State University	1991
			M.S.	University of New Hampshire	2001
			Ph.D.	University of New Hampshire	2006
Hoza, Jack E	PROFESSOR	Humanities	B.S.	University of Northern Colorado	1978
			M.S.	McDaniel College	1991
			Ph.D.	Boston University	2001
Hrabak, Estelle M*	ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Michigan State University	1978
			Ph.D.	University of Wisconsin	1992
Huang, Chia-Lin *	RESEARCH ASSISTANT PROFESSOR	Space Science Center	Ph.D.	Boston University	2007
				National Taiwan	

Huang, Ju-Chin *	PROFESSOR	Economics	B.S.	University, Taiwan	1985
			M.S.	North Carolina State University	1988
			Ph.D.	North Carolina State University	1994
Hubbard, Derek W	LECTURER	Languages, Literatures, & Cultures	B.A.	University of New Hampshire	2008
			M.A.	University of New Hampshire	2013
Huber, Matthew *	PROFESSOR	Earth Sciences - Joint Positions	B.A.	University of Chicago	1994
			M.S.	University of California - Los Angeles	1997
			Ph.D.	University of California - Santa Cruz	2001
Huddleston, Mark W*	PRESIDENT	UNH President's Office	B.A.	State University of New York at Buffalo	1972
			M.A.	University of Wisconsin - Madison	1973
			Ph.D.	University of Wisconsin - Madison	1978
Huff, Lindsay A	LECTURER	English	M.A.	New School for Sound Res	2013
Hughes Clarke, John E*	PROFESSOR	Earth Sciences	B.A.	Oxford Univ-Eng	1983
			M.S.	Southampton University, UK	1984
			Ph.D.	Dalhousie University, Canada	1988
Humphreys, Elizabeth P*	RESEARCH ASSISTANT PROFESSOR	Institute on Disability	A.A.	Cape Cod Comm College	1976
			B.A.	Westfield State College	1979
			M.Ed.	University of New Hampshire	1997
Hungerford, Mark V	LECTURER	Communication	B.A.	Emory University	1992
			M.A.	University of Texas at Austin	2005
			Ph.D.	University of Washington	2011
Hupper, Veronica P	LECTURER	Mathematics & Statistics	B.A.	Caldwell Coll for Women	1996

			M.S.	University of New Hampshire	1999
			Ph.D.	University of New Hampshire	2005
Hurn, Marcus B	PROFESSOR	UNHL JD Instruction	B.S.	Missouri State University	1974
			J.D.	Univ of Missouri-Kansas City	1977
Hutton, Carolyn H	LECTURER	English	B.A.	University of North Carolina	1985
			M.A.	University of New Hampshire	1990
Ikegami, Pamela B	SENIOR LECTURER	Languages, Literatures, & Cultures	B.A.	University of Colorado at Boulder	1987
			M.A.	University of Hawaii Manoa	1994
Ingram, Lionel R	PRINCIPAL LECTURER	Political Science	B.S.	United States Military Academy	1963
			M.P.A.	Harvard University	1966
			Ph.D.	Harvard University	1995
Innis, Daniel E*	PROFESSOR	Dean's Office	B.B.A.	Ohio University	1985
			M.B.A.	Miami University - Ohio	1986
			Ph.D.	Ohio State University	1991
Isenberg, Philip A*	RESEARCH PROFESSOR	Space Science Center	B.S.	Massachusetts Institute of Technology	1971
			M.S.	University of Chicago	1976
			Ph.D.	University of Chicago	1976
Jackman, Krista Law	SENIOR LECTURER	English	B.A.	University of New Hampshire	1991
			M.A.T.	Rivier College	1993
Jackson, Robert Michael	SENIOR LECTURER	Communication	B.A.	Univ of Arkansas	1986
			M.A.	Central Washington University,	1993
			Ph.D.	Rensselaer Polytechnic Institute	2002
Jacobs, Jennifer M*	PROFESSOR	Civil and Environmental Engineering	B.S.	Brown University	1987
			M.S.	Tufts University	1993
			Ph.D.	Cornell University	1997

Jacoby, Robb *	PROFESSOR	Mathematics & Statistics	B.S.	University of Chicago	1941
			M.S.	University of Chicago	1942
			Ph.D.	University of Chicago	1946
Jaffee, Eleanor M	RESEARCH ASSISTANT PROFESSOR	Carsey School	B.A.	State University of New York at Binghamton	1996
			M.S.W.	University at Albany	2003
			Ph.D.	University at Albany	2012
Jago, Barbara J	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.A.	Smith College	1981
			M.A.	New York University	1993
			M.A.	University of South Florida	1993
			Ph.D.	University of South Florida	1998
Jahnke, Leland S*	PROFESSOR	Biological Sciences	B.A.	University of Minnesota	1961
			M.A.	University of Minnesota	1966
			M.S.	University of Minnesota	1968
			Ph.D.	University of Minnesota	1973
Jamison, Tyler B*	ASSISTANT PROFESSOR	Human Development & Family Studies	B.A.	Miami University - Ohio	2006
			M.S.	University of Missouri - Columbia	2008
			Ph.D.	University of Missouri - Columbia	2012
Janson-Sand, Colette H*	ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Bridgewater State University	1967
			M.S.	University of New Hampshire	1970
			Ph.D.	University of New Hampshire	1980
Jarema, Patricia M	LECTURER	Biological Sciences	A.A.	Greenfield Comm Coll	1995
			B.S.	University of Massachusetts - Amherst	2000
			M.S.	University of New	2008

				Hampshire	
			Ph.D.	University of New Hampshire	2013
Jeong, Kyung Jae *	ASSISTANT PROFESSOR	Chemical Engineering	B.S.	Seoul National University, Korea	2001
			Ph.D.	Purdue University	2008
Jin, Hong	LECTURER	Computer Science	B.S.	Shanghai University, China	1997
			M.S.	University of Windsor, Canada	2001
			Ph.D.	University of Windsor, Canada	2010
Johnson, Jeremiah W	ASSISTANT PROFESSOR	Science and Technology	B.S.	University of New Hampshire	2000
			M.S.	University of New Hampshire	2002
			Ph.D.	University of New Hampshire	2010
Johnson, Joel E*	ASSOCIATE PROFESSOR	Earth Sciences	B.S.	University of Minnesota	1996
			M.S.	University of Illinois at Urbana-Champaign	1998
			Ph.D.	Oregon State University	2004
Johnson, Kenneth M*	PROFESSOR	Sociology	B.A.	University of Michigan	1972
			M.A.	University of North Carolina	1975
			Ph.D.	University of North Carolina	1980
Johnson, Linda B	ASSOCIATE PROFESSOR	Government Documents	B.A.	University of Arizona	1971
			M.L.S.	University of Arizona	1974
			M.A.	Santa Clara University	1988
Johnson, Nancy M	PROFESSOR	Thompson School of Applied Science	B.S.	University of New Hampshire	1979
			M.Ed.	University of Maine	1984
Johnson, Paul C*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	Emory and Henry College	1968
			Ph.D.	Cornell University	1974

Johnson, Richard P*	PROFESSOR	Chemistry	B.S.	Syracuse University	1972
			Ph.D.	Syracuse University	1976
Joiner, Sarah L	LECTURER	Chemistry	B.S.	Gannon University	2010
			Ph.D.	University of New Hampshire	2015
Jonas, Michael *	ASSISTANT PROFESSOR	UNHM Degree Programs	B.S.	College of William and Mary	1987
			M.S.	College of William and Mary	1989
			Ph.D.	Tufts University	2003
Jones, Lisa M*	RESEARCH ASSOCIATE PROFESSOR	Psychology	B.A.	University of Virginia	1992
			M.A.	University of Rhode Island	1997
			Ph.D.	University of Rhode Island	1999
Jones, Stephen H*	RESEARCH ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	University of Maine	1976
			M.S.	University of Wisconsin	1980
			Ph.D.	University of Wisconsin	1983
Jorgensen, Nathan A*	ASSISTANT PROFESSOR	Music	B.M.	University of Kansas	1999
			M.M.	University of Missouri - Columbia	2003
			D.M.A.	University of Kansas	2010
Jusseume, Sarah B	LECTURER	English	B.S.	University of New Hampshire	2001
			M.A.	University of Massachusetts - Boston	2012
Kaen, Fred R*	PROFESSOR	Accounting and Finance	B.S.	Lehigh University	1963
			M.B.A.	University of Michigan	1968
			Ph.D.	University of Michigan	1972
Kalargyrou, Valentini *	ASSOCIATE PROFESSOR	Hospitality Management	B.S.	Athens University of Economics and Business	1987
			M.S.	University of Nevada - Las Vegas	1989
				University of Nevada	

			Ph.D.	- Las Vegas	2009
Kallmerten, Pamela S	CLINICAL ASSISTANT PROFESSOR	Nursing	B.S.	Colby-Sawyer College, New Lond	1989
			M.S.	Northeastern University	1997
Kalnejais, Linda H*	ASSISTANT PROFESSOR	Earth Sciences - Joint Positions	B.S.	University of Western Australia, Australia	1993
			B.E.	University of Western Australia, Australia	1995
			Ph.D.	Massachusetts Institute of Technology	2005
Karo, Rebecca W	LECTURER	Art and Art History	B.A.	Wellesley College	1970
			M.A.	Boston College	1973
			M.A.	Harvard University	1987
Kaye, David J	PROFESSOR	Theatre & Dance	B.S.	Castleton State College	1984
			M.F.A.	Brandeis University	1993
Kayser, John R*	ASSOCIATE PROFESSOR	Political Science	B.A.	University of New Hampshire	1962
			M.A.	Ohio State University	1964
			Ph.D.	Claremont Graduate University	1969
Kazura, Kerry *	ASSOCIATE PROFESSOR	Human Development & Family Studies	B.A.	University of Southern Maine	1989
			M.S.	Auburn University	1992
			Ph.D.	Auburn University	1995
Keim, Christina J	LECTURER	Biological Sciences	B.S.	University of New Hampshire	1998
			M.Ed.	University of New Hampshire	2009
Kelsey, Kim S	CLINICAL ASSISTANT PROFESSOR	Social Work	B.A.	Fairleigh Dickinson University	1976
			M.S.W.	Univ of Maryland at Baltimore	1995
Kempster, William G*	PROFESSOR	Music	B.A.	University of New England	1978
			D.M.A.	University of Alberta, Canada	1999
Kerns, Georgia M*	ASSOCIATE PROFESSOR	Education	B.S.E.	University of Delaware	1969

			M.Ed.	University of Delaware	1975
			M.Ed.	University of New Hampshire	1983
			Ph.D.	University of Kansas	1987
Kidwell, Mardi J	ASSOCIATE PROFESSOR	Communication	B.A.	University of California - Santa Cruz	1986
			M.A.	University of California - Santa Barbara	1998
			Ph.D.	University of California - Santa Barbara	2003
Kies, Christopher R*	PROFESSOR	Music	B.M.	The New England Conservatory of Music	1973
			M.F.A.	Brandeis University	1977
			Ph.D.	Brandeis University	1984
Kilbride, Richard C	LECTURER	Accounting and Finance	B.A.	Colorado College	1978
			M.B.A.	Dartmouth College	1980
Kilcrease, Kelly	ASSOCIATE PROFESSOR	UNHM Degree Programs	B.A.	University of Florida	1986
			M.B.A.	Tampa College	1988
			Ph.D.	Union Institute & University	1992
Kim, Bo Rin *	ASSISTANT PROFESSOR	Social Work	B.A.	Yonsei University, Seoul, Korea	2003
			M.A.	Seoul National University, Korea	2005
			M.S.W.	University of Michigan	2007
			Ph.D.	University of Michigan	2014
Kim, Soo Hyon *	ASSISTANT PROFESSOR	English	B.A.	Korea University, Seoul	2005
			M.A.	University of Illinois at Urbana-Champaign	2008
			Ph.D.	Michigan State University	2013
Kinghorn, Deborah A	PROFESSOR	Theatre & Dance	B.A.	SUNY College at Fredonia	1976

			M.F.A.	Trinity University - Texas	1981
Kinner, Nancy E*	PROFESSOR	Civil and Environmental Engineering	B.A.	Cornell University	1976
			M.S.	University of New Hampshire	1980
			Ph.D.	University of New Hampshire	1983
Kinsey, Brad L*	PROFESSOR	Mechanical Engineering	B.S.	University of Michigan	1992
			M.S.	Northwestern University	1998
			Ph.D.	Northwestern University	2001
Kirkpatrick, John T*	ASSOCIATE DEAN	Dean's Office - Liberal Arts	B.A.	Colby College	1977
			B.A.	Colby College	1977
			M.A.	University of New Hampshire	1979
			M.A.	University of New Hampshire	1979
			Ph.D.	University of New Hampshire	1983
			Ph.D.	University of New Hampshire	1983
Kirsch, Nicholas J*	ASSISTANT PROFESSOR	Electrical & Computer Eng Dept	B.S.	University of Wisconsin - Madison	2003
			M.S.	Drexel University	2006
			Ph.D.	Drexel University	2009
Kirshen, Paul H*	RESEARCH PROFESSOR	Civil and Environmental Engineering	B.S.	Brown University	1970
			M.S.	Massachusetts Institute of Technology	1972
			Ph.D.	Massachusetts Institute of Technology	1975
Kistler, Lynn M*	PROFESSOR	Physics - Joint Positions	B.S.	Harvey Mudd College	1981
			M.S.	University of Maryland	1983
				University of	

			Ph.D.	Maryland	1987
Klein, Anita S*	ASSOCIATE PROFESSOR	Biological Sciences	B.A.	University of Rochester	1975
			Ph.D.	Michigan State University	1981
Klenotic, Jeffrey F	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.A.	Pennsylvania State University	1985
			M.A.	University of Massachusetts - Amherst	1988
			Ph.D.	University of Massachusetts - Amherst	1996
Klewicki, Joseph C*	PROFESSOR	Mechanical Engineering	B.S.	Michigan State University	1983
			M.S.	Georgia Institute of Technology	1985
			Ph.D.	Michigan State University	1989
Knezevic, Marko *	ASSISTANT PROFESSOR	Mechanical Engineering	B.S.	University of Novi Sad, Serbia	2004
			M.S.	University of Novi Sad, Serbia	2004
			Ph.D.	Drexel University	2009
Knowles, Clark E	PRINCIPAL LECTURER	English	B.A.	George Mason University	1988
			M.A.	University of New Hampshire	1998
			M.F.A.	Bennington College	2005
Knowles, William F	LECTURER	Accounting and Finance	B.S.	University of New Hampshire	1985
			M.B.A.	University of Massachusetts - Amherst	1986
Kong, Liang	LECTURER	Mathematics & Statistics	B.S.	University of Science and Technology of China	1994
			M.S.	University of Houston	1997
			Ph.D.	Rutgers University	2006
Konzett, Delia C*	ASSOCIATE PROFESSOR	English	B.A.	Georgia State University	1989
			M.A.	University of Chicago	1991
			Ph.D.	University of Chicago	1997

Konzett, Matthias B	LECTURER	English	M.A.	University of Innsbruck, Austria	1985
			M.A.	Emory University	1988
			Ph.D.	Emory University	1991
			Ph.D.	University of Chicago	1995
Korkolis, Ioannis *	ASSISTANT PROFESSOR	Mechanical Engineering	Diploma	National and Kapodistrian University of Athens, Greece	1998
			M.S.	National and Kapodistrian University of Athens, Greece	2002
			Ph.D.	University of Texas at Austin	2009
Kovach, Adrienne I*	RESEARCH ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	University of Kansas	1990
			Ph.D.	North Carolina State University	1998
Kowalski, Stanley P	CLINICAL PROFESSOR	UNHL Intl Tech Transfer Institute	B.S.	Pennsylvania State University	1975
			B.S.	University of Pittsburgh	1980
			Ph.D.	Cornell University	1989
			J.D.	Franklin Pierce Law Center	2005
Krasner, James N*	PROFESSOR	English	B.A.	Hampshire College	1983
			M.A.	University of Pennsylvania	1985
			Ph.D.	University of Pittsburgh	1989
Krzanowski, James E*	PROFESSOR	Mechanical Engineering	B.E.	Stevens Institute of Technology	1978
			M.S.	Massachusetts Institute of Technology	1981
			Ph.D.	Massachusetts Institute of Technology	1983
Kucharek, Harald A*	RESEARCH PROFESSOR	Space Science Center	Ph.D.	Technical University of Munich	1984
			M.S.	University of Regensburg, Germany	1986

			Ph.D.	Technical University of Munich	1989
Kukenberger, Michael R*	ASSISTANT PROFESSOR	Management	B.A.	University of Maine	1998
			M.B.A.	Indiana University	2000
			Ph.D.	University of Connecticut	2012
Kun, Andrew L*	ASSOCIATE PROFESSOR	Electrical & Computer Eng Dept	B.S.	University of New Hampshire	1992
			M.S.	University of New Hampshire	1994
			Ph.D.	University of New Hampshire	1997
Lachance, Rachel A	LECTURER	English	B.A.	Boston University	2004
			M.A.T.	Boston University	2006
LaCourse, John R*	PROFESSOR	Electrical & Computer Eng Dept	B.A.	University of Connecticut	1974
			M.S.	University of Connecticut	1977
			Ph.D.	University of Connecticut	1981
Laflamme, David J*	RESEARCH ASSISTANT PROFESSOR	Health Management & Policy	B.S.	Plymouth State University	1989
			M.P.H.	Tulane University	1997
			Ph.D.	Johns Hopkins University	2003
Laird, Jo *	ASSOCIATE PROFESSOR	Earth Sciences	B.A.	University of California - San Diego	1969
			Ph.D.	California Institute of Technology	1977
Lammers, Richard B*	RESEARCH ASSISTANT PROFESSOR	Earth Systems Research Center	B.S.	University of Toronto, Canada	1989
			M.S.	University of Toronto, Canada	1990
			Ph.D.	University of Toronto, Canada	1998
Lan, Tu	ASSISTANT PROFESSOR	Geography	B.S.	Peking University, China	2006
			M.S.	University of Hong Kong	2007
			Ph.D.	University of North	2014

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Lane, Peter J*	ASSOCIATE DEAN	Dean's Office	B.A.	University of New Hampshire	1981
			M.B.A.	University of Massachusetts - Amherst	1992
			Ph.D.	University of Connecticut	1996
Lanier, Douglas M*	PROFESSOR	English	B.A.	Stetson University	1977
			M.A.	Duke University	1980
			Ph.D.	Duke University	1988
Lannamann, John W	ASSOCIATE PROFESSOR	Communication	B.S.	Babson College	1977
			M.A.	University of Massachusetts - Amherst	1980
			Ph.D.	University of Massachusetts - Amherst	1983
Larkin, Edward T	PROFESSOR	Languages, Literatures, & Cultures	B.A.	Saint Peter's University	1971
			M.A.	St. John's College	1980
			Ph.D.	University of Pennsylvania	1986
LaRoche, Dain P*	ASSOCIATE PROFESSOR	Kinesiology	B.S.	University of New Hampshire	1996
			M.S.	University of Massachusetts - Amherst	1998
			Ph.D.	University of Utah	2004
Lashmore, David S*	RESEARCH PROFESSOR	Material Science Program	B.S.	University of Florida	1969
			M.S.	Michigan Tech Univ	1970
			Ph.D.	University of Virginia	1977
Laue, Thomas M*	PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Johns Hopkins University	1971
			Ph.D.	University of Connecticut	1981
Lauer, Josh C	ASSOCIATE PROFESSOR	Communication	B.A.	Indiana University of Pennsylvania	1992
			M.L.I.S.	University of Pittsburgh	1997
				University of	

			M.A.	Pennsylvania	2005
			Ph.D.	University of Pennsylvania	2008
LaValley, Kenneth J*	DEAN	Administration	B.S.	University of New Hampshire	1993
			M.S.	University of Rhode Island	1996
			Ph.D.	University of Rhode Island	2005
LeBlanc, Christopher D	ASSISTANT PROFESSOR	Humanities	B.S.	University of Massachusetts - Lowell	1997
			M.S.	University of Vermont	2007
LeBlanc, Ronald D	PROFESSOR	Languages, Literatures, & Cultures	B.S.	United States Air Force Academy	1971
			B.A.	University of Washington	1977
			M.A.	University of Washington	1979
			Ph.D.	University of Washington	1984
Lee, Jade C*	ASSISTANT PROFESSOR	Education	B.A.	Stanford University	2000
			M.A.	Brooklyn College of the City University of New York	2002
			Ph.D.	Emory University	2011
Lee, Lina *	PROFESSOR	Languages, Literatures, & Cultures	B.A.	Fu Jen Catholic University, China	1979
			M.A.	University of North Texas	1986
			Ph.D.	University of Texas at Austin	1992
Lee, Martin A*	PROFESSOR	Physics - Joint Positions	B.S.	Stanford University	1966
			Ph.D.	University of Chicago	1971
Lee, Thomas D*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	SUNY College of Environmental Science and Forestry	1973
			M.S.	University of Alberta, Canada	1976
			Ph.D.	University of Illinois at Urbana-	1980

				Champaign	
Leese, Michael S*	ASSISTANT PROFESSOR	Classics, Humanities & Ital Studies	B.A.	University of Connecticut	2003
			M.A.	University of Connecticut	2004
			Ph.D.	University of Michigan	2014
Leichtman, Michelle D*	ASSOCIATE PROFESSOR	Psychology	B.A.	Wellesley College	1985
			M.A.	Cornell University	1991
			Ph.D.	Cornell University	1994
Lema, Kimberly Jeanne*	RESEARCH ASSOCIATE PROFESSOR	Family Research Lab	B.A.	Rhode Island College	1994
			M.A.	Rhode Island College	1996
			Ph.D.	University of Rhode Island	1999
Lembree, Ashlyn J	CLINICAL PROFESSOR	UNHL Clinic	B.A.	University of Vermont	1991
			J.D.	Franklin Pierce Law Center	1996
			MIP	Franklin Pierce Law Center	2008
Lepler, Jessica M*	ASSOCIATE PROFESSOR	History	B.A.	Tulane University	2000
			M.A.	Brandeis University	2005
			Ph.D.	Brandeis University	2008
Lessard, Marc R*	ASSOCIATE PROFESSOR	Physics - Joint Positions	Ph.D.	Dartmouth College	1997
			B.S.	University of New Hampshire	
Lesser, Michael P*	RESEARCH PROFESSOR	Molecular, Cellular, & Biomedical	A.S.	George Washington University	1977
			B.A.	University of New Hampshire	1983
			M.S.	University of New Hampshire	1985
			Ph.D.	University of Maine	1989
Lewis, James B*	ASSOCIATE PROFESSOR	Health Management & Policy	B.A.	University of Pittsburgh	1972
			M.M.	Northwestern University	1974
			D.Sc.	Johns Hopkins University	1985

Li, Changsheng *	RESEARCH PROFESSOR	Earth Systems Research Center	B.S.	University of Science and Technology	1964
			M.S.	Chinese Academy of Sciences, China	1981
			Ph.D.	Chinese Academy of Sciences, China	1985
			Ph.D.	University of Wisconsin	1986
Li, Gonghu *	ASSOCIATE PROFESSOR	Chemistry	B.S.	Hebei Normal University, China	1997
			M.S.	Chinese Academy of Sciences, China	2000
			Ph.D.	University of Iowa	2005
Li, Huimin *	ASSISTANT PROFESSOR	Accounting and Finance	M.Sc.	Southern Illinois University	2007
			Ph.D.	Georgia State University	2014
Li, Jun *	ASSOCIATE PROFESSOR	Management	B.S.	Beijing University, China	1995
			M.S.	Beijing University, China	1999
			Ph.D.	Texas A & M University	2004
Li, Linyuan *	PROFESSOR	Mathematics & Statistics	B.S.	Xuzhou Teachers College, China	1985
			M.S.	East China Normal University, China	1988
			M.S.	University of New Mexico	1997
			Ph.D.	Michigan State University	2002
Li, Yaning *	ASSISTANT PROFESSOR	Mechanical Engineering	B.S.	Xi'an Jiaotong University, China	2000
			M.S.	Xi'an Jiaotong University, China	2003
			M.S.	University of Michigan	2006
			Ph.D.	University of Michigan	2007
Licciardi, Joseph M*	ASSOCIATE PROFESSOR	Earth Sciences	B.A.	State University of New York at Geneseo	1992
			M.S.	Oregon State University	1995

			Ph.D.	Oregon State University	2000
Lieber, Rochelle *	PROFESSOR	English	A.B.	Vassar College	1976
			Ph.D.	Massachusetts Institute of Technology	1980
Lightbody, Anne F*	ASSISTANT PROFESSOR	Earth Sciences	B.S.	Yale University	1999
			M.S.	Massachusetts Institute of Technology	2004
			Ph.D.	Massachusetts Institute of Technology	2007
Lindblade, Carl E	LECTURER	Hospitality Management	A.B.	Tufts University	1964
			B.A.	Tufts University	1964
Linder, Ernst *	PROFESSOR	Mathematics & Statistics	Ph.D.	Pennsylvania State University	1987
			M.S.	Union College - New York	1980
			Diploma	University of Zurich, Switzerland	1978
Lippmann, Thomas C*	ASSOCIATE PROFESSOR	Earth Sciences	B.A.	Linfield College	1985
			M.S.	Oregon State University	1989
			Ph.D.	Oregon State University	1992
Litvaitis, John A*	PROFESSOR	Natural Resources & The Environment	B.S.	University of New Hampshire	1975
			M.S.	Oklahoma State University	1978
			Ph.D.	University of Maine	1984
Litvaitis, Marianne K*	PROFESSOR	Natural Resources & The Environment	B.S.	Clemson University	1980
			M.S.	Clemson University	1982
			Ph.D.	University of Maine	1985
Liu, Yixin *	ASSOCIATE PROFESSOR	Accounting and Finance	M.S.	Southern Illinois University - Carbondale	2007
			Ph.D.	University of Iowa	2007
Lockwood, Mary Katherine K*	CLINICAL ASSOCIATE PROFESSOR	Molecular, Cellular, &	B.S.	Davidson College	1977

		Biomedical				
				M.S.	Pennsylvania State University	1981
				Ph.D.	University of California	1989
Loos, Michele S	CLINICAL ASSISTANT PROFESSOR	Nursing		B.S.	University of New Hampshire	1990
				M.S.	University of New Hampshire	2006
Lopate, Clifford *	RESEARCH ASSOCIATE PROFESSOR	Space Science Center		B.A.	Swarthmore College	1982
				Ph.D.	University of Chicago	1983
				M.S.	University of Chicago	1988
Lord, Susan A*	CLINICAL ASSOCIATE PROFESSOR	Social Work		B.A.	University of New Hampshire	1975
				M.S.W.	Smith College	1979
				Ph.D.	University of New Hampshire	2004
Lu, Yan *	ASSOCIATE PROFESSOR	History		B.A.	Fudan University, China	1982
				M.A.	Michigan State University	1989
				M.A.	Cornell University	1993
				Ph.D.	Cornell University	1996
Lugalla, Joe L P	PROFESSOR	Anthropology		B.A.	University of Dar-Es-Salaam, Tanzania	1982
				M.A.	University of Dar-Es-Salaam, Tanzania	1983
				Diploma	University of Kassel, Germany	1990
				Ph.D.	University of Bremen, Germany	1990
Lugaz, Noe E*	RESEARCH ASSISTANT PROFESSOR	Space Science Center		M.S.	University of Michigan	2003
				Ph.D.	University of Michigan	2007
Lunak, Michal	ASSISTANT STATE SPECIALIST/PROFESSOR	Food and Agriculture		B.S.	University of Agriculture, Prague	1991
				M.S.	University of Minnesota	1995
				Ph.D.	Iowa State University	2000
Luppold, Deborah	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Youth and Family		B.S.	University of Massachusetts -	1975

			M.S.	Amherst	
				Boston University	1979
Lusenhop, Richard W	LECTURER	Social Work	B.A.	University of Wisconsin	1992
			M.S.W.	Smith College	1995
			M.A.	Brandeis University	2003
			Ph.D.	Brandeis University	2010
Lyon, Alynna J*	ASSOCIATE PROFESSOR	Political Science	B.A.	New Mexico State University at Alamogordo	1991
			M.A.	New Mexico State University at Alamogordo	1993
			Ph.D.	University of South Carolina	1999
Lyon, Mark E*	ASSOCIATE PROFESSOR	Mathematics & Statistics	B.S.	Brigham Young University	2002
			M.S.	Brigham Young University	2003
			Ph.D.	California Institute of Technology	2009
Lyons, Anthony P*	RESEARCH PROFESSOR	Center for Coastal & Ocean Mapping	M.S.	Texas A & M University	1991
			Ph.D.	Texas A & M University	1995
Macarty, Matthew J	LECTURER	Decisions Sciences	B.S.	University of New Hampshire	1997
			M.B.A.	University of New Hampshire	2002
MacFarlane, Lisa *	PROFESSOR	English	A.B.	Princeton University	1979
			M.A.	University of Michigan	1983
			Ph.D.	University of Michigan	1987
Macieski, Robert L*	ASSOCIATE PROFESSOR	Humanities	B.A.	Boston College	1980
			M.A.	Boston College	1982
			Ph.D.	Boston College	1994
MacLea, Kyle S	ASSISTANT PROFESSOR	Science	Ph.D.	Dartmouth College	2003
			A.B.	Cornell University	1997
Macmanes, Matthew D*	ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	A.A.S.	Broome Comm College	1999

			B.S.	University of Michigan	2005
			Ph.D.	University of California - Berkeley	2011
MacMillan, John J	LECTURER	Thompson School of Applied Science	B.A.	Boston College	1974
			M.B.A.	University of New Hampshire	1996
Macpherson, Andrew M	LECTURER	Political Science	B.A.	Mercyhurst College	1999
			M.A.	London School of Economics	2000
Maddocks, William O	CLINICAL ASSISTANT PROFESSOR	Carsey School	B.S.	Southeastern Mass Univ	1990
			M.S.	Southern New Hampshire University	1996
Madigan, Sean W	LECTURER	English	B.S.	University of Delaware	2002
			M.A.	University of Delaware	2005
			Ph.D.	University of Delaware	2009
Magnifico, Alecia M*	ASSISTANT PROFESSOR	English	B.A.	Swarthmore College	2000
			M.S.	University of Wisconsin - Madison	2007
			Ph.D.	University of Wisconsin - Madison	2010
Mair, Robert G*	PROFESSOR	Psychology	A.B.	Brown University	1972
			Sc.M.	Brown University	1975
			Ph.D.	Brown University	1979
Malarte-Feldman, Claire L	PROFESSOR	Languages, Literatures, & Cultures	D	Universite Paul Valery, France	1970
			Licence	Universite Paul Valery, France	1971
			Maitrise	Universite Paul Valery, France	1972
			Ph.D.	University of California - Davis	1984
Malley, James P*	PROFESSOR	Civil and Environmental Engineering	B.S.	Rutgers University	1980
			M.S.	University of Massachusetts -	1984

				Amherst	
			B.S.	University of Massachusetts - Amherst	1987
			Ph.D.	University of Massachusetts - Amherst	1988
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			M.Ed.	Allegheny College	1972
			Ph.D.	George Peabody College of Vanderbilt University	1979
Malloy, Joanne M	CLINICAL ASSISTANT PROFESSOR	Institute on Disability	B.A.	University of Massachusetts - Amherst	1976
			M.S.	Univ of Tenn Knoxville	1981
			Ph.D.	University of New Hampshire	2011
Malone, Mary Frances*	ASSOCIATE PROFESSOR	Political Science	B.A.	Saint Joseph's University	1995
			M.A.	University of Pittsburgh	2000
			Ph.D.	University of Pittsburgh	2004
			Ph.D.	University of Pittsburgh	2004
Manalo, Alberto B*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.S.	University of The Philippines, Philippines	1976
			M.S.	Kansas State University	1978
			Ph.D.	Kansas State University	1985
Mangan, Michael A	SENIOR LECTURER	Psychology	B.A.	Oregon State University	1985
			M.A.	Humboldt State University	1994
			M.A.	University of New Hampshire	1997
			Ph.D.	University of New Hampshire	2000
Manseau, Melissa A	LECTURER	Theatre & Dance	B.A.	University of New Hampshire	1996
				University of	

			M.M.	Northern Iowa	1999
Mantilla Clavijo, Leticia	LECTURER	Languages, Literatures, & Cultures	B.A.	University of Veracruz, Mexico	1998
			M.A.	University of New Hampshire	2010
Margolin, Aaron B*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Arizona	1982
			Ph.D.	University of Arizona	1986
Margolin, Davida L	LECTURER	Molecular, Cellular, & Biomedical	A.A.S.	Rochester Institute of Technology	1980
			B.F.A.	Rochester Institute of Technology	1981
			B.S.	University of New Hampshire	2005
			M.A.	University of New Hampshire	2011
Marino, Mary B	LECTURER	Theatre & Dance	B.A.	University of New Hampshire	1999
Marone, Adele J	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Adelphi University	1985
			B.S.	University of New Hampshire	1998
			M.S.	University of New Hampshire	2007
Marschner, Sarah Jane	PRINCIPAL LECTURER	Theatre & Dance	B.A.	University of Rhode Island	1972
			B.A.	University of Rhode Island	1972
Marshall, Courtney D*	ASSISTANT PROFESSOR	English	B.A.	Rutgers University	2000
			M.A.	University of California - Los Angeles	2005
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Marti-Olivella, Jaume *	ASSOCIATE PROFESSOR	Languages, Literatures, & Cultures	Licenciatura	Univ of Barcelona	1976
			M.A.	University of Illinois at Urbana-Champaign	1978

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			Ph.D.	University of Illinois at Urbana-Champaign	1988
Martin, Alexandra G	LECTURER	Anthropology	B.A.	Mount Holyoke College	2005
			M.A.	College of William and Mary	2010
Martin, Mary E*	RESEARCH ASSISTANT PROFESSOR	Earth Systems Research Center	A.A.S.	University of New Hampshire	1977
Marx, Jerry D*	ASSOCIATE PROFESSOR	Social Work	B.S.	University of Southern Maine	1981
			M.S.W.	Boston College	1984
			D.S.W.	Boston College	1994
Masucci, Peter F	LECTURER	Marketing	B.S.	Boston University	1970
			M.B.A.	Clark University	1984
Mathieson, Arthur C*	PROFESSOR	Biological Sciences	B.S.	University of California - Los Angeles	1960
			M.S.	University of California - Los Angeles	1961
			Ph.D.	University of British Columbia, Canada	1965
Matteucci, Ann-Marie E	LECTURER	Health Management & Policy	B.A.	University of New Hampshire	1991
			M.H.A.	University of New Hampshire	1996
Matthias Powers, Collette M	LECTURER	Computer Science	B.S.	University of New Hampshire	1993
			M.S.	University of New Hampshire	1997
Mattingly, David M*	ASSISTANT PROFESSOR	Physics	B.A.	Dartmouth College	1996
			Ph.D.	University of Maryland	2003
Mattingly, Marybeth J*	RESEARCH ASSISTANT PROFESSOR	Carsey School	B.A.	Dartmouth College	1996
			M.A.	University of Maryland	2000
			Ph.D.	University of Maryland	2005
Mayer, John D*	PROFESSOR	Psychology	B.A.	University of Michigan	1975

			M.A.	Case Western Reserve University	1979
			Ph.D.	Case Western Reserve University	1982
Mayer, Larry A*	PROFESSOR	Earth Sciences - Joint Positions	B.S.	University of Rhode Island	1973
			Ph.D.	University of California	1979
Mayne, Howard R*	PROFESSOR	Chemistry	B.S.	University of Manchester, England	1974
			M.S.	University of Manchester, England	1975
			Ph.D.	University of Manchester, England	1977
McBride, Mekeel D*	PROFESSOR	English	B.A.	Mills College (Calif)	1972
McCann, Michael A	PROFESSOR	UNHL JD Instruction	B.A.	Georgetown University	1998
			J.D.	University of Virginia	2002
			LL.M.	Harvard Law School	2005
McCarthy, Patrick F	LECTURER	UNHM Degree Programs	B.A.	Gallaudet University	1979
			M.S.	McDaniel College	1985
McClain, John F	LECTURER	Mathematics & Statistics	B.S.	Rutgers University	2003
			M.A.	University of Texas	2007
			Ph.D.	University of New Hampshire	2015
McConnell, Mark L*	PROFESSOR	Physics - Joint Positions	B.S.	Case Western Reserve University	1980
			Ph.D.	University of New Hampshire	1987
McCrone, Sharon M*	PROFESSOR	Mathematics & Statistics	A.B.	Dartmouth College	1988
			M.S.	University of New Hampshire	1992
			Ph.D.	University of New Hampshire	1997
McDowell, William H*	PROFESSOR	Natural Resources & The Environment	B.A.	Amherst College	1975
			Ph.D.	Cornell University	1982
McGaughy, Jill A*	ASSOCIATE PROFESSOR	Psychology	B.A.	Bradley University	1991
			M.A.	Ohio State University	1993

			Ph.D.	Ohio State University	1998
McGrath, Robert J*	ASSOCIATE PROFESSOR	Health Management & Policy	B.S.	University of New Hampshire	1996
			M.S.	Harvard University	1998
			M.A.	Brandeis University	2000
			Ph.D.	Brandeis University	2006
McHugh, John P*	ASSOCIATE PROFESSOR	Mechanical Engineering	B.S.	University of Michigan	1978
			Ph.D.	University of Michigan	1986
McIntyre, Gayle R	LECTURER	English as a Second Language	M.A.	Laval University, Quebec	1991
			B.A.	University of Manitoba, Canada	2001
McKinsey, Martin S*	ASSOCIATE PROFESSOR	English	B.A.	Hampshire College	1977
			M.A.	Syracuse University	1990
			M.A.	University of Virginia	1998
			Ph.D.	University of Virginia	2001
McLaughlin, Kevin W	SENIOR LECTURER	Accounting and Finance	B.S.B.A.	Northeastern University	1994
			M.S.	Boston College	1999
McLaughlin, Sean R	LECTURER	Recreation Management & Policy	B.A.	Chico State College	1995
			M.S.	University of New Hampshire	2007
McMahon, Gregory *	ASSOCIATE PROFESSOR	Classics, Humanities & Ital Studies	B.A.	University of Kansas	1975
			M.A.	Miami University - Ohio	1979
			Ph.D.	University of Chicago	1988
McNamara, Paul F	ASSOCIATE PROFESSOR	Philosophy	B.A.	City University of New York	1976
			M.A.	University of Missouri - Columbia	1980
			Ph.D.	University of Massachusetts - Amherst	1990
McNamee, Sheila	PROFESSOR	Communication	B.A.	University of Massachusetts - Amherst	1978

			M.A.	University of Massachusetts - Amherst	1980
			Ph.D.	University of Massachusetts - Amherst	1982
McPhee, Pamela Kerr	CLINICAL ASSISTANT PROFESSOR	Browne Center	B.S.	University of New Hampshire	1983
			M.S.W.	University of Connecticut	1987
McSheehan, Michael C	CLINICAL ASSISTANT PROFESSOR	Institute on Disability	B.S.	University of New Hampshire	1990
Mebert, Carolyn J*	ASSOCIATE PROFESSOR	Psychology	B.A.	Boston University	1974
			Ph.D.	Boston University	1978
Medina, Ricardo A*	ASSOCIATE PROFESSOR	Civil and Environmental Engineering	B.S.	Christian Brothers University	1997
			M.S.	Stanford University	1999
			Ph.D.	Stanford University	2003
Mello, Patrick D	LECTURER	English	B.A.	California State University, C	2005
			M.A.	California State University, C	2007
			Ph.D.	University of Notre Dame	2013
Mellyn, Elizabeth W*	ASSOCIATE PROFESSOR	History	B.A.	University of Chicago	1999
			M.A.	Harvard University	2002
			Ph.D.	Harvard University	2007
Meredith, Dawn C*	PROFESSOR	Physics	B.A.	St. John's College	1980
			M.S.	California Institute of Technology	1984
			Ph.D.	California Institute of Technology	1987
Merenda, Michael J*	PROFESSOR	Management	B.B.A.	Northeastern University	1970
			M.B.A.	Northeastern University	1972
			Ph.D.	University of Massachusetts - Amherst	1978
Messner, Richard A*	ASSOCIATE PROFESSOR	Electrical & Computer Eng Dept	B.S.	Clarkson College	1979

			M.S.	Clarkson College	1981
			Ph.D.	Clarkson University	1984
Meyrowitz, Joshua	PROFESSOR	Communication	B.A.	City University of New York	1972
			M.A.	City University of New York	1974
			Ph.D.	New York University	1978
Mian, Nicholas D	ASSISTANT PROFESSOR	Natural & Social Sciences	A.B.	Bowdoin College	2008
			M.A.	Boston University	2007
			M.A.	University of Massachusetts - Boston	2009
			Ph.D.	University of Massachusetts - Boston	2013
Michaud, Michelle M H	LECTURER	Communication	B.A.	University of Maine	2001
			M.A.	University of Maine	2004
Miles, Russell A	LECTURER	Decisions Sciences	B.S.M.E.	University of New Hampshire	1990
			M.B.A.	University of New Hampshire	1990
Miletkov, Mihail K*	ASSOCIATE PROFESSOR	Accounting and Finance	B.B.A.	University of Georgia	2002
			Ph.D.	University of Georgia	2008
Miller, Brian C	CLINICAL ASSISTANT PROFESSOR	Social Work	B.A.	Boston University	1980
			M.A.	University of New Hampshire	2000
Miller, Glen P*	PROFESSOR	Chemistry	B.S.Chem.	Clarkson University	1987
			Ph.D.	Clarkson University	1991
Miller, John P*	ASSOCIATE PROFESSOR	Kinesiology	B.S.	Brooklyn College of the City University of New York	1981
			M.S.	Long Island University	1983
			Ph.D.	University of Maryland	1992
Miller, Lisa C*	ASSOCIATE PROFESSOR	English	B.A.	University of New Hampshire	1980
			M.A.	University of New Hampshire	1988
		Electrical &		Pennsylvania State	

Miller, W Thomas*	PROFESSOR	Computer Eng Dept	B.S.	University	1972
			M.S.	Pennsylvania State University	1974
			Ph.D.	Pennsylvania State University	1977
Minard, Maryann *	CLINICAL ASSISTANT PROFESSOR	Education	B.S.Ed.	Westfield State College	1971
			M.P.A.	Troy State Univ	1988
			Ph.D.	University of New Hampshire	2002
Mineau, Madeleine M*	RESEARCH ASSISTANT PROFESSOR	Earth Systems Research Center	B.A.	Colby College	2003
			Ph.D.	Idaho State University	2010
Minnis, Andrea L	LECTURER	English	B.A.	University of New Hampshire	1997
			M.A.	University of New Hampshire	2004
Minocha, Subhash C*	PROFESSOR	Biological Sciences	B.S.	Panjab University, India	1968
			M.S.	Panjab University, India	1969
			Ph.D.	University of Washington	1974
Mirhashem, Behzad	LAW PROFESSOR	UNHL Clinic	B.A.	Williams College	1982
			Ph.D.	University of Maryland	1989
			J.D.	Northwestern University	1993
Mitchell, Clayton R	LECTURER	Natural Resources & The Environment	B.A.	University of Arizona	1991
			J.D.	Vermont Law School, So Royalto	1996
			M.S.	Vermont Law School, So Royalto	1996
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Mittal, Prashant	CLINICAL ASSISTANT PROFESSOR	Health Management & Policy	B.S.	University of Delhi, India	1996
			M.S.	University of Delhi, India	1998

			M.S.	University of Southern Maine	2000
Mizusawa, Diane D	LECTURER	Marketing	B.A.	Rowan University	
Mizusawa, Leroy R	LECTURER	Management	M.B.A.	Stanford University	1980
Mo, Weiwei *	ASSISTANT PROFESSOR	Civil and Environmental Engineering	B.S.	Shanghai University, China	2008
			M.S.	University of South Florida	2011
			Ph.D.	University of South Florida	2012
Mohr, Robert D*	ASSOCIATE PROFESSOR	Economics	B.A.	University of Virginia	1993
			M.S.	University of Texas at Austin	1998
			Ph.D.	University of Texas at Austin	2001
Montminy, Timothy P	LECTURER	Molecular, Cellular, & Biomedical	B.S.	University of Rochester	2001
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Moore, Gregg E*	RESEARCH ASSOCIATE PROFESSOR	Biological Sciences	B.S.	Tufts University	1994
			M.S.	Boston University	1997
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Moore, Sean D*	ASSOCIATE PROFESSOR	English	B.A.	University of Massachusetts - Amherst	1991
			M.A.	Georgetown University	1995
			Ph.D.	Duke University	2003
Moore, Timothy S	RESEARCH ASSISTANT PROFESSOR	Ocean Process Analysis Lab	B.S.	Worcester Polytechnic Institute	1989
			Ph.D.	University of New Hampshire	2008
			M.S.	University of Rhode Island	1995
Moran, Catherine L	SENIOR LECTURER	Sociology	B.A.	University of New England	1994
			M.Sc.	London School of Economics	1996
			Ph.D.	University of New Hampshire	2004
Morrell, Jesse Stabile	LECTURER	Molecular, Cellular, &	B.S.	University of New	1999

		Biomedical		Hampshire	
			M.S.	University of New Hampshire	2004
			Ph.D.	University of New Hampshire	2013
Morton, Cory M*	ASSISTANT PROFESSOR	Social Work	D	Rutgers University	2012
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Moses, Jennifer K*	PROFESSOR	Art and Art History	B.F.A.	Temple University	1983
			M.F.A.	Indiana University - Bloomington	1987
Moses, Mark D*	CLINICAL ASSOCIATE PROFESSOR	Human Development & Family Studies	B.A.	Northeastern University	1971
			M.Ed.	Springfield College	1972
			C.A.G.S.	University of New Hampshire	1977
			Ph.D.	Ohio University	1979
Mosher, David C*	PROFESSOR	Earth Sciences	B.S.	Acadia Univ	1983
			M.S.	Memorial University - Canada	1987
			Ph.D.	Dalhousie University, Canada	1993
Mukasa, Samuel B*	DEAN	Dean's Office - CEPS	B.S.	University of New Hampshire	1977
			M.S.	Ohio State University	1980
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Mulligan, Shelley E*	ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	University of Western Ontario, Canada	1985
			M.S.	Colorado State University	1990
			Ph.D.	University of Washington	1997
Munoz Pina, Margarita	LECTURER	Languages, Literatures, & Cultures	B.A.	Monterey Institute	1989
			M.A.	University of Salamanca, Spain	2007
Murphy, William J	PROFESSOR	UNHL JD Instruction	B.A.	Denison University	1971
			J.D.	Pennsylvania State	1974

				University	
			M.B.A.	Harvard University	1981
			D.B.A.	Harvard University	1987
Narayan, Arvind	LECTURER	Computer Science	B.S.	University of Mysore in India	1985
			M.S.	University of Massachusetts - Lowell	1990
Nardone, H Gay	PROFESSOR	Theatre & Dance	B.F.A.	The Boston Conservatory	1974
			M.F.A.	The Boston Conservatory	1990
Neal, Catherine A*	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Food and Agriculture	B.S.	University of Massachusetts - Amherst	1976
			M.S.	Cornell University	1981
			Ph.D.	Cornell University	1983
Nedyalkov, Ivaylo	LECTURER	Mechanical Engineering	B.S.	Sofia University, Bulgaria	2007
			Ph.D.	University of New Hampshire	2015
			M.S.	Chalmers University of Technology, Sweden	2013
Needle, David B	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Tufts University	2003
			D.V.M.	Tufts University	2011
Neefus, Christopher D*	PROFESSOR	Biological Sciences	B.A.	Boston University	1971
			Ph.D.	University of New Hampshire	1982
Negrón-Gonzales, Melinda	ASSISTANT PROFESSOR	UNHM Degree Programs	B.A.	University of Florida	1997
			M.A.	University of Florida	2004
			Ph.D.	University of Florida	2009
Nesbitt, Kimberly T*	ASSISTANT PROFESSOR	Child Study and Development Center	Ph.D.	North Carolina State University	2010
Newman, Anna C	LECTURER	Classics, Humanities & Ital Studies	Lizenziat	University of Zurich, Switzerland	1981
Nikshych, Dmitri *	PROFESSOR	Mathematics & Statistics	B.S.	National Technical University, Ukraine	1994

			M.S.	National Technical University, Ukraine	1996
			Ph.D.	University of California - Los Angeles	2001
Niland, Karen Sue	LECTURER	Nursing	B.S.	University of New Hampshire	1989
			M.S.	University of New Hampshire	1999
Niman, Neil B*	ASSOCIATE DEAN	Dean's Office	B.A.	University of California - Santa Cruz	1978
			M.A.	University of California - Riverside	1980
			Ph.D.	University of Texas	1985
Nisbet, Jane A*	SENIOR VICE PROVOST FOR RESEARCH	Research Office Central Operations	B.S.	Simmons College	1977
			M.S.	University of Wisconsin	1980
			Ph.D.	University of Wisconsin	1983
Nolte, Kerry L	CLINICAL ASSISTANT PROFESSOR	Nursing	B.S.	Northeastern University	2006
			M.S.N.	University of New Hampshire	2009
O'Brien, Edward J*	PROFESSOR	Psychology	B.A.	Framingham State College	1978
			M.A.	State University of New York at Oswego	1980
			Ph.D.	University of Massachusetts - Amherst	1984
O'Hern, Matthew S*	ASSISTANT PROFESSOR	Marketing	M.B.A.	Indiana University	1989
			B.A.	Grinnell College	1990
			Ph.D.	University of Wisconsin	2009
O'Keefe, Christine Marie	LECTURER	English	B.A.	Rivier College	1993
			M.A.	Midwestern State University	1996
			M.F.A.	Emerson College (Mass)	2004
O'Sullivan, Jeanne H	CLINICAL ASSOCIATE PROFESSOR	Communications Disorders	B.A.	Bates College	1976

			M.Ed.	Northeastern University	1979
Ogden, Andrew B	LECTURER	Biological Sciences	B.A.	University of North Carolina at Chapel Hill	1998
			M.S.	University of Georgia	2009
Ogembo, Justus M*	ASSOCIATE PROFESSOR	Education	B.A.	Kenyatta University, Kenya	1986
			M.A.	University of Nairobi, Kenya	1990
			Ph.D.	Harvard University	1997
Ollinger, Scott V*	PROFESSOR	Natural Resources & The Environment	B.S.	State University of New York	1989
			M.S.	University of New Hampshire	1992
			Ph.D.	University of New Hampshire	2000
Onosko, Joseph J*	ASSOCIATE PROFESSOR	Education	B.S.	University of Wisconsin - Madison	1979
			M.S.	University of Wisconsin - Madison	1984
			Ph.D.	University of Wisconsin - Madison	1988
Orcutt, John L	PROFESSOR	UNHL JD Instruction	B.A.	University of California - Berkeley	1990
			J.D.	University of California - Berkeley	1993
Orhon, Mehmet	LECTURER	Mathematics & Statistics	B.S.	University of New Castle, UK	1965
			Ph.D.	Univ of Wales Eng	1969
Orliac, Pascal	LECTURER	Management	M.B.A.	HEC Paris, France	1980
Ormeçi Matoglu, Melda *	ASSISTANT PROFESSOR	Decisions Sciences	B.S.	University of Jordan, Amman	1999
			M.S.	Georgia Institute of Technology	2001
			Ph.D.	Georgia Institute of Technology	2006
Orovich, Nicholas N*	PROFESSOR	Music	B.A.	University of Wisconsin - Madison	1976
			M.M.	The New England Conservatory of Music	1978
				University of	

Ortmeier, Christina M*	ASSOCIATE PROFESSOR	English	B.A.	Massachusetts - Amherst	1995
			M.A.T.	University of New Hampshire	1998
			Ph.D.	University of New Hampshire	2007
Ozabaci, Deniz *	ASSISTANT PROFESSOR	Economics	Ph.D.	State University of New York at Binghamton	2014
Pack, Thomas L	LECTURER	Thompson School of Applied Science	M.	Southern Nh University	2008
Paglia, Alison Kolbe	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.A.	Texas Tech University	1992
			M.A.	Texas Tech University	1994
			Ph.D.	Texas Tech University	1998
Palace, Michael W*	ASSOCIATE PROFESSOR	Earth Systems Research Center	B.A.	University of Virginia	1992
			M.S.	University of Virginia	1995
			Ph.D.	University of New Hampshire	2006
Paquin, Andrea M	LECTURER	English	B.A.	New York University	2007
			M.Ed.	Boston University	2011
Paterson, Susanne F	ASSOCIATE PROFESSOR	Humanities	B.A.	University of East Anglia, United Kingdom	1989
			M.A.	Purdue University	1992
			Ph.D.	University of Texas at Austin	2001
Payne, Thomas L*	ASSOCIATE PROFESSOR	English	B.A.	Princeton University	1984
			M.F.A.	Columbia University in the City of New York	1996
			M.F.A.	Princeton University	2006
Pazicni, Samuel *	ASSOCIATE PROFESSOR	Chemistry	B.A.	Washington & Jefferson College	2001
			M.S.	University of Wisconsin	2003
			Ph.D.	University of Wisconsin	2006
Pe'eri, Shachak *	RESEARCH ASSOCIATE PROFESSOR	Center for Coastal & Ocean	B.S.	Tel Aviv University	1996

		Mapping	M.S.	Tel Aviv University	1997
			Ph.D.	Tel Aviv University	2005
Peebles, Catherine M	PRINCIPAL LECTURER	Classics, Humanities & Ital Studies	B.A.	University of Virginia	1990
			M.A.	State University of New York at Binghamton	1994
			Ph.D.	State University of New York at Binghamton	2000
Pekins, Peter J*	PROFESSOR	Natural Resources & The Environment	B.A.	State University of New York at Plattsburgh	1976
			M.S.	University of New Hampshire	1981
			Ph.D.	Utah State University	1988
Pelletier, Donna M*	CLINICAL ASSOCIATE PROFESSOR	Nursing	B.S.	University of Massachusetts - Amherst	1977
			M.S.	University of New Hampshire	2000
Pennock, Jonathan Rhoads*	DIRECTOR	Marine Sciences & Ocean Engineering	B.A.	Earlham College	1978
			M.S.	University of Delaware	1981
			Ph.D.	University of Delaware	1983
Peracchi, Kelly Ann	SENIOR LECTURER	Psychology	B.A.	Saint Anselm'S College	1999
			M.A.	University of New Hampshire	2001
			Ph.D.	University of New Hampshire	2004
Perkins, Donna M*	CLINICAL ASSOCIATE PROFESSOR	Justice Studies Program	B.A.	University of Southern Maine	1997
			M.A.	University of New Hampshire	2000
			M.S.	University of New Hampshire	2003
			Ph.D.	University of New Hampshire	2003
Pescosolido, Anthony T*	ASSOCIATE PROFESSOR	Management	B.A.	Harvard University	1991

			Ph.D.	Case Western Reserve University	2001
Peshkova, Svetlana A	ASSOCIATE PROFESSOR	Anthropology	M.A.	Moscow State Linguistic University, Russia	1996
			MTS	Emory University	1999
			M.A.	Syracuse University	2002
			Ph.D.	Syracuse University	2006
Peterson, Julia M	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Natural Resources	B.A.	Connecticut College	1982
			M.S.	Antioch New England, Keene, N.	1989
Pfeiffer, Bruce E*	ASSOCIATE PROFESSOR	Marketing	B.S.	University of Colorado at Boulder	1991
			M.B.A.	Rockhurst University	1997
			M.S.	University of Colorado at Boulder	2005
			Ph.D.	University of Cincinnati	2008
Phan, Loan T*	ASSOCIATE PROFESSOR	Education	B.S.	University of Washington	1994
			M.A.	University of Nevada - Reno	1998
			Ph.D.	University of Nevada - Reno	2001
Phillips, Prentiss	LECTURER	English	B.A.	Antioch College	1972
			M.A.T.	School for International Training	1975
Pietro, Kevin J	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Illinois State Univ	2010
			M.S.	Illinois State Univ	2012
Pillemer, David B*	PROFESSOR	Psychology	B.A.	University of Chicago	1972
			Ed.D.	Harvard University	1979
Pillet-Shore, Danielle M	ASSOCIATE PROFESSOR	Communication	B.A.	University of California - Los Angeles	1998
			M.A.	University of California - Los Angeles	2001
			Ph.D.	University of California - Los Angeles	2008

Pimpare, Stephen	LECTURER	Political Science			
Piotrowski, Thaddeus M	PROFESSOR	Natural & Social Sciences	B.A.	Saint Francis University	1963
			M.A.	University of Pennsylvania	1969
			Ph.D.	University of Pennsylvania	1972
Pistole, Thomas G*	PROFESSOR	Molecular, Cellular, & Biomedical	Ph.D.	Wayne State University	1964
			M.S.	Wayne State University	1966
			Ph.D.	University of Utah	1969
Plachetzki, David C*	ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Northern Michigan Univ	1996
			M.S.	Northern Michigan Univ	2000
			Ph.D.	University of California - Santa Barbara	2009
Planalp, Roy P*	ASSOCIATE PROFESSOR	Chemistry	B.S.	Massachusetts Institute of Technology	1979
			Ph.D.	University of California - Berkeley	1983
Plante, Amy Solomon	CLINICAL ASSOCIATE PROFESSOR	Communications Disorders	B.S.	University of New Hampshire	1980
			M.S.	University of New Hampshire	1982
Plante, Catherine Craycraft*	ASSOCIATE PROFESSOR	Accounting and Finance	B.A.	University of Cincinnati	1983
			M.A.	University of Missouri - Columbia	1985
			Ph.D.	Ohio State University	1991
Plante, Donald J	LECTURER	UNHM Degree Programs	B.S.	University of Rhode Island	2005
			M.S.	University of Rhode Island	2007
			Ph.D.	Tufts University	2012
Plunkett, Leah A W	ASSOCIATE PROFESSOR	UNHL Academic Success Program	A.B.	Harvard University	2001
			B.A.	Harvard University	2001

			J.D.	Harvard University	2006
Pohl, Karsten *	PROFESSOR	Physics	Diploma	Ludwig Maximilian University of Munich, Germany	1990
			Ph.D.	University of Pennsylvania	1997
Pokorny, Ruwa M	LECTURER	Languages, Literatures, & Cultures	B.S.	University of New Hampshire	1985
Polasky, Janet L*	PROFESSOR	History	B.A.	Carleton College	1973
			M.A.	Stanford University	1974
			Ph.D.	Stanford University	1978
Portnoy, Neil	LECTURER	Mathematics & Statistics	A.A.S.	Univ of Hartford	1976
			B.A.	University of Southern Maine	1992
			M.S.	University of New Hampshire	1996
			Ph.D.	University of New Hampshire	1998
Potter, Sharyn J*	ASSOCIATE PROFESSOR	Sociology	B.S.	State University of New York	1989
			M.P.H.	Emory University	1994
			Ph.D.	Emory University	1998
Poworoznek, Emily LeViness	ASSOCIATE PROFESSOR	Math/Engineering Library	B.A.	State University of New York at Purchase	1982
			M.S.	University of New Hampshire	1986
			M.L.S.	University of Rhode Island	1993
Prelli, Lawrence J*	PROFESSOR	Communication	B.S.	State University of New York at Brockport	1977
			M.A.	University at Albany	1979
			Ph.D.	Pennsylvania State University	1984
			M.S.	University of New Hampshire	1998
Prescott, Sarah Grace	ASSOCIATE PROFESSOR	UNHM Degree Programs	B.S.	Worcester Polytechnic Institute	1993
			M.Ed.	University of New Hampshire	1999
				University of New	

			Ph.D.	Hampshire	2006
Price, William N	ASSISTANT PROFESSOR	UNHL JD Instruction	A.B.	Harvard University	2004
			Ph.D.	Columbia University in the City of New York	2010
			J.D.	Columbia University in the City of New York	2011
Pringle, James M*	ASSOCIATE PROFESSOR	Earth Sciences - Joint Positions	B.S.	Dartmouth College	1990
			Ph.D.	Massachusetts Institute of Technology	1998
Proctor, Sarah E	CLINICAL ASSISTANT PROFESSOR	Thompson School of Applied Science	B.S.	University of New Hampshire	1996
			D.V.M.	Cornell University	2000
Provost, Lauren E*	RESEARCH ASSISTANT PROFESSOR	Computer Science	B.S.	University of Texas at Austin	2002
			M.S.T.	University of New Hampshire	2009
			Ph.D.	University of New Hampshire	2013
Pruiksmas, Rose A	LECTURER	Music	B.A.	Calvin College	1989
			M.M.	University of Michigan	1992
			M.A.	University of Michigan	1994
			Ph.D.	University of Michigan	1999
Puccilli, Patricia A*	CLINICAL ASSISTANT PROFESSOR	Nursing	B.S.	University of New Hampshire	2005
			M.S.	University of New Hampshire	2007
Pugh, R Michael	LECTURER	UNHM Degree Programs	B.A.	Dartmouth College	1966
			M.A.	Paterson State College	1986
			Ph.D.	University of New Hampshire	1994
Pugh, Stephen R	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.A.	Ripon College	1976
			M.S.	University of North	1980

			Ph.D.	Dakota	
				Boston University	1989
Pulkkinen, Cindy Ann	PRINCIPAL LECTURER	Languages, Literatures, & Cultures	B.A.	University of Texas	1983
			M.A.	University of New Hampshire	1997
Purrenhage, Jennifer L	LECTURER	Natural Resources & The Environment	B.S.	University of Wisconsin	1998
			M.S.	University of Akron	2004
			Ph.D.	Miami University - Ohio	2009
Putnam, Charles T*	CLINICAL PROFESSOR	Dean's Office - Liberal Arts	B.A.	Yale University	1979
			J.D.	University of Connecticut	1985
Quigley, Donald W	PROFESSOR	Thompson School of Applied Science	B.S.F.	University of New Hampshire	1976
			M.S.	University of New Hampshire	1978
Quinn, Timothy J*	ASSOCIATE PROFESSOR	Kinesiology	B.S.	Bradley University	1979
			M.A.	Michigan State University	1983
			Ph.D.	Michigan State University	1987
Raeder, Joachim *	PROFESSOR	Physics - Joint Positions	Diploma	University of Cologne, Germany	1985
			Ph.D.	University of Cologne, Germany	1989
Ragland, Linda G*	ASSISTANT PROFESSOR	Accounting and Finance	B.S.	University of Tennessee	1993
			M.Acc.	University of Tennessee	1999
			Ph.D.	University of South Florida	2011
Ramadanovic, Petar *	PROFESSOR	English	B.A.	University of Belgrade, Serbia	1989
			M.A.	State University of New York at Binghamton	1993
			Ph.D.	State University of New York at Binghamton	1997

Ramsay, James D	PROFESSOR	Political Science	M.A.	University of Wisconsin	
			Ph.D.	University of Wisconsin	
Ramsey, David L	PROFESSOR	Theatre & Dance	B.A.	Plymouth State University	1973
			M.F.A.	University of North Carolina	1977
Ramsey, Philip J	LECTURER	Mathematics & Statistics	B.A.	University of New Hampshire	1974
			M.S.	Southern Ill Univ-Edwardsville	1986
			Ph.D.	Virginia Polytechnic Institute and State University	1989
Ranfoss, Lisa M	CLINICAL ASSISTANT PROFESSOR	Human Development & Family Studies	M.S.	Wheelock College	2007
			A.S.	New Hampshire Technical Instit	
			B.S.	University of New Hampshire	
Raymond, Kristin L	LECTURER	English	B.A.	Saint Michael'S College	2006
			M.A.	Saint Michael'S College	2007
Reagan, Emilie N*	ASSISTANT PROFESSOR	Education	B.S.	Georgetown University	2003
			M.S.	Saint Joseph's University	2005
			Ph.D.	Boston College	2011
Reardon, Lawrence C*	ASSOCIATE PROFESSOR	Political Science	B.A.	Johns Hopkins University	1979
			M.I.A.	Columbia University in the City of New York	1983
			M.Phil.	Columbia University in the City of New York	1986
			Ph.D.	Columbia University in the City of New York	1991
Rebellow, Cesar J*	PROFESSOR	Sociology	B.A.	Rice University	1996
			M.A.	Emory University	1999
			Ph.D.	Emory University	2002

Rehan, Sandra M*	ASSISTANT PROFESSOR	Biological Sciences	B.S.	Brock University	2007
			Ph.D.	Brock University	2011
Reichard, Amanda	RESEARCH ASSISTANT PROFESSOR	Institute on Disability	B.A.	Davidson College	1993
			M.S.	Harvard University	1996
			Ph.D.	University of Kansas	2001
Reilly, Ruth A*	CLINICAL ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Florida State University	1965
			M.O.E.	University of New Hampshire	1989
			Ph.D.	University of New Hampshire	1998
Reinhold, Vernon *	RESEARCH PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of New Hampshire	1959
			M.S.	University of New Hampshire	1961
			Ph.D.	University of Vermont	1965
Remar, Daniel A G*	ASSISTANT PROFESSOR	Hospitality Management	Ph.D.	University of South Carolina	2015
Resch, John P	PROFESSOR	Humanities	B.A.	Denison University	1962
			M.A.	Ohio State University	1965
			Ph.D.	Ohio State University	1969
Reynolds, Edward J	LECTURER	Communication	B.A.	Australian National University	2000
			M.A.	Australian National University	2009
			Ph.D.	University of Queensland, Bris	2013
Reynolds, Samantha C	LECTURER	UNHM Degree Programs	B.A.	Winthrop University	2007
			B.S.	Winthrop University	2007
			Ph.D.	Dartmouth College	2012
Rhiel, Mary E	INTERIM SENIOR VICE PROVOST	Provost Office	B.S.	University of Wisconsin - River Falls	1971
			B.S.	University of Wisconsin - River Falls	1971
			M.A.	University of Wisconsin - Madison	1978

			M.A.	University of Wisconsin - Madison	1978
			Ph.D.	University of Wisconsin - Madison	1988
			Ph.D.	University of Wisconsin - Madison	1988
Richards, Harry J*	DEAN	Graduate School Administration	B.A.	State University of New York at Potsdam	1968
			M.S.	University at Albany	1969
			Ph.D.	Florida State University	1978
Richman, David M	PROFESSOR	Theatre & Dance	B.A.	Harvard University	1972
			Ph.D.	Stanford University	1979
Rigg, Sarah H	LECTURER	Biological Sciences	B.S.	University of New Hampshire	1998
Rioux, James M	LECTURER	English	B.A.	University of New Hampshire	1992
			M.F.A.	Georgia State University	1997
Ripley, David K*	PROFESSOR	Music	B.A.	Harvard University	1970
			M.M.	The New England Conservatory of Music	1977
Rivard, David A*	PROFESSOR	English	B.A.	University of Massachusetts - Dartmouth	1975
			M.F.A.	University of Arizona	1982
			M.F.A.	University of Massachusetts - Dartmouth	1983
Robb, Judith A*	ASSOCIATE PROFESSOR	Education	A.B.	Connecticut College	1967
			M.A.	University of South Florida	1969
			Ed.D.	University of Rochester	1982
Roberts, Alexandra	ASSISTANT PROFESSOR	UNHL FP IP Center	B.A.	Dartmouth College	2002
			A.B.	Stanford University	2003
			J.D.	Yale University	2008
Robertson, Robert A*	ASSOCIATE PROFESSOR	Natural Resources & The Environment	B.A.	Western Illinois University	1981
				Oregon State	

			M.A.	University	1984
			Ph.D.	University of Illinois at Urbana- Champaign	1990
Rodgers, Melissa S	CLINICAL ASSISTANT PROFESSOR	Kinesiology	B.S.	Pennsylvania State University	2003
			M.Ed.	University of Alabama	2006
Rodriguez, Julia E*	ASSOCIATE PROFESSOR	History	B.A.	The New School	1989
			M.A.	The New School	1992
			M.Phil.	Columbia University in the City of New York	1995
			Ph.D.	Columbia University in the City of New York	2000
Rodriguez, Lindsey M*	ASSISTANT PROFESSOR	Psychology	B.S.	University of Florida	2008
			M.A.	University of Houston	2010
			Ph.D.	University of Houston	2014
Ross, Robert S*	ASSISTANT PROFESSOR	Psychology	B.A.	Fairleigh Dickinson University	1997
			M.A.	Boston University	1999
			Ph.D.	Boston University	2006
Ross, William E	PROFESSOR	Special Collections	B.A.	East Carolina University	1977
			M.A.	University of Maryland	1980
			M.L.S.	University of Maryland	1980
			Ph.D.	American University	1992
Rossi, Maria I	LECTURER	Languages, Literatures, & Cultures	B.A.	Univ De Costa Rica, San Jose	1976
			M.A.	University of New Hampshire	2007
Roth, George L	LECTURER	Management	B.S.	University of New Hampshire	1979
			M.B.A.	University of New Hampshire	1980
			Ph.D.	Massachusetts Institute of Technology	1993
		Natural			

Rowe, Rebecca J*	ASSISTANT PROFESSOR	Resources & The Environment	B.A.	Bowdoin College	1997
			Ph.D.	University of Chicago	2006
Ruane, Nicole J	LECTURER	Classics, Humanities & Ital Studies	B.A.	Hamilton College	1992
			M.A.	Union Theological Seminary	1995
			Ph.D.	Union Theological Seminary	2005
Rubini, Loris *	ASSISTANT PROFESSOR	Economics	Ph.D.	Arizona State University	2010
Rucinski, Andrzej *	PROFESSOR	Electrical & Computer Eng Dept	M.S.	Odessa College	1973
			Ph.D.	Gdansk University of Technology, Poland	1982
			B.S.	Xi'an Jiaotong University, China	2002
Ruml, Wheeler *	ASSOCIATE PROFESSOR	Computer Science	A.S./B.S.	Harvard University	1993
			Ph.D.	Harvard University	2002
Rush, Lee Pozzi	CLINICAL ASSISTANT PROFESSOR	Social Work	B.S.W.	Syracuse University	1980
			M.S.W.	Boston College	1982
Ryan, James M*	PROFESSOR	Physics	B.S.	University of California - Riverside	1970
			M.S.	University of California - San Diego	1974
			Ph.D.	University of California - Riverside	1978
Ryan, Joelle R	LECTURER	Women's Studies Program	B.A.	University of New Hampshire	1996
			M.A.	University of Northern Iowa	2000
			M.A.	University of New Hampshire	2002
			Ph.D.	Bowling Green State University	2009
Rzhanov, Yuri *	RESEARCH PROFESSOR	Center for Coastal & Ocean Mapping	M.S.	Novosibirsk State University,	1978
			Ph.D.	Academy of Science of Russia,	1983

Sabin, Mihaela C*	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.S.	University of Bucharest, Hungary	1984
			M.S.	University of Bucharest, Hungary	1984
			M.S.T.	University of New Hampshire	2003
			Ph.D.	University of New Hampshire	2003
Sable, Janet R*	PROFESSOR	Recreation Management & Policy	B.A.	University of Michigan	1975
			M.S.	Northeastern University	1981
			Ed.D.	Boston University	1989
Safford, Thomas G*	ASSOCIATE PROFESSOR	Sociology	B.A.	University of North Carolina at Chapel Hill	1989
			M.A.	Stanford University	1995
			Ph.D.	Cornell University	2004
Saglam, Aziz I	LECTURER	Economics	B.S.	Middle East Tech Univ	1996
			M.A.	Bilkent University	1996
			M.A.	University of Pittsburgh	1998
			Ph.D.	West Virginia University	2006
Salisbury, Joseph E*	RESEARCH ASSOCIATE PROFESSOR	Ocean Process Analysis Lab	B.A.	University of Southern Maine	1980
			M.S.	University of Southern Maine	1990
			Ph.D.	University of New Hampshire	2003
Salvio, Paula M*	PROFESSOR	Education	B.A.	Fordham University	1981
			M.A.	Wesleyan University	1983
			Ph.D.	University of Rochester	1989
Salyer, Lucy E*	ASSOCIATE PROFESSOR	History	B.A.	University of California - San Diego	1979
			M.A.	University of California - Berkeley	1983
			Ph.D.	University of California - Berkeley	1989

Sample, Ruth J	ASSOCIATE PROFESSOR	Philosophy	B.A.	Oberlin College	1986
			Ph.D.	University of Pittsburgh	1995
Samuels, Joanne G*	ASSOCIATE PROFESSOR	Nursing	B.S.N.	Northeastern University	1978
			M.S.	Boston University	1984
			Ph.D.	University of Massachusetts - Amherst	2007
Sandstrom, Anna K	PRINCIPAL LECTURER	Languages, Literatures, & Cultures	B.A.	Colby College	1985
			M.A.	University of Massachusetts - Amherst	1992
Sansom, Dana M	ASSOCIATE PROFESSOR	Thompson School of Applied Science	A.A.	University of New Hampshire	1977
			B.S.	University of New Hampshire	1983
			M.Ed.	University of New Hampshire	1985
Scala, Dante J*	ASSOCIATE PROFESSOR	Political Science	B.A.	Villanova University	1990
			M.A.	University of Chicago	1993
			Ph.D.	University of Chicago	2000
Schefer, Donna L	LECTURER	Communications Disorders	B.S.	Trenton State College	1984
			M.Ed.	Boston University	1991
Scherr, Albert E	PROFESSOR	UNHL JD Instruction	B.A.	Yale University	1976
			J.D.	Vermont Law School, So Royalto	1981
Schmidt, Torsten *	ASSOCIATE PROFESSOR	Economics	M.A.	University of Florida	1984
			Ph.D.	University of Florida	1990
Schram, Thomas H*	ASSOCIATE PROFESSOR	Education	B.A.	Dartmouth College	1978
			B.A.	University of Wyoming	1982
			M.Ed.	University of Oregon	1987
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Schuh, Mary Clare*	RESEARCH ASSISTANT PROFESSOR	Institute on Disability	B.A.	State University of New York at Geneseo	1984
			M.A.	Syracuse University	1987

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Schwadron, Nathan A*	PROFESSOR	Physics - Joint Positions	B.A.	Oberlin College	1990
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Sciabarrasi, Michael R	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Food and Agriculture	B.S.	University of Massachusetts - Lowell	1976
			M.S.	Virginia Polytechnic Institute and State University	1978
Scogland, Elissa	LECTURER	English	B.A.	Bentley College	1992
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Seal, Samantha L	ASSISTANT PROFESSOR	English	B.A.	Washington University - St Louis	2006
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Sedory, Daniel R	CLINICAL ASSOCIATE PROFESSOR	Kinesiology	B.S.	University of Pittsburgh	1982
			M.S.	University of Arizona	1984
Seeley, William P	LECTURER	Philosophy	Ph.D.	Columbia University in the City of New York	1988
			M.F.A.	Columbia University in the City of New York	1992
			Ph.D.	City University of New York	2006
Seichepine, Daniel R	LECTURER	Psychology	B.A.	California State University, C	2002
			M.A.	Boston University	2005
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			Ph.D.	Massachusetts Institute of Technology	1970
Sell, Nancy L	SENIOR LECTURER	English	B.A.	Michigan State University	1983
			M.A.	Eastern Michigan Univ	1990
Semenova, Oksana V	SENIOR LECTURER	English	B.A.	Kramatorsk Inst Econ to Humani	1997
			M.A.	University of New Hampshire	2005
			M.Ed.	University of New Hampshire	2012
Senier, Siobhan *	ASSOCIATE PROFESSOR	English	A.B.	Bowdoin College	1987
			M.A.	University of Illinois at Urbana-Champaign	1992
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Shannon, Patrick *	ASSOCIATE PROFESSOR	Social Work	B.A.	State University of New York at Buffalo	1990
			M.S.W.	State University of New York at Buffalo	1993
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			M.A.T.	School for International Training	1990
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Sharp, Erin H*	ASSOCIATE PROFESSOR	Human Development & Family Studies	B.S.	Virginia Commonwealth University	1999
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Shore, Barry *	PROFESSOR	Decisions Sciences	B.S.	Tufts University	1960
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			M.S.	University of Rhode Island	1976
Short, Kevin M*	PROFESSOR	Mathematics & Statistics	B.A.	University of Rochester	1985
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Slomba, Elizabeth A	PROFESSOR	Special Collections	B.A.	Mount Holyoke College	1991
			M.A.	University of Virginia	1993
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Smick-Attisano, Regina A	DIRECTOR	Thompson School of Applied Science	B.S.	University of Maryland	1982
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Smith, Andrew E*	DIRECTOR	Dean's Office - Liberal Arts	B.A.	University of Cincinnati	1983
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Smith, Richard G*	ASSISTANT PROFESSOR	Natural Resources & The Environment	B.S.	University of New Mexico	1996
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Smith, Robert Scott	PROFESSOR	Classics, Humanities & Ital Studies	B.A.	Mary Wash Coll (Univ Va)	1993
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Solvignon Slifer, Patricia *	ASSISTANT PROFESSOR	Physics	D.E.U.G.	Université Blaise Pascal, France	1996
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Sova McCabe, Margaret E	ASSOCIATE DEAN	UNHL JD Instruction	B.A.	Bard College	1992
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Sower, Stacia *	PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	University of Utah	1973
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Sowers, Jeannie *	ASSOCIATE PROFESSOR	Political Science	B.A.	Harvard University	1989
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Sparrow, John E	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.S.	State University of New York at Oswego	1983
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Sparrow, Sophie M	PROFESSOR	UNHL JD Instruction	B.A.	Harvard University	1982
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Spence, Harlan *	DIRECTOR	EOS Administration	B.A.	Boston University	1983
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St. Jean, Adam T	LECTURER	Chemical Engineering	B.S.	Northeastern University	2004
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Stampono, Mary D	ASSOCIATE PROFESSOR	Geography	B.A.	Albion College	1998

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Stewart, Elizabeth A	CLINICAL ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	University of New Hampshire	1988
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Stibler, Robert J*	PROFESSOR	Music	B.S.	Susquehanna University	1970
			M.M.	Catholic University of America	1973
			D.F.A.	Catholic University of America	1979
			D.M.A.	Catholic University of America	1979
Stine, William W*	ASSOCIATE PROFESSOR	Psychology	B.S.	Georgia Institute of Technology	1977
			M.S.	Georgia Institute of Technology	1983
			Ph.D.	Georgia Institute of Technology	1983
Stracuzzi, Nena F	LECTURER	Sociology	B.A.	University of California - Irvine	1996
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Straussfogel, Debra L	SENIOR LECTURER	Natural Resources & The Environment	B.S.	Pennsylvania State University	1979
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Sukhu, Anupama *	ASSISTANT PROFESSOR	Hospitality Management	Ph.D.	Ohio State University	2015
Sullivan, Elise Robinson*	CLINICAL ASSISTANT PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	University of Miami	1992
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Sullivan, Mary Jane	CLINICAL ASSISTANT PROFESSOR	Communications Disorders	B.A.	George Washington University	1982
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			M.A.	University	1984
			D	Mesa College	2003
Sundar, Vidyalakshmi *	ASSISTANT PROFESSOR	Occupational Therapy	B.S.	The Tamil Nada Dr M.G.R Medical University, India	1979
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Swack, Michael E*	RESEARCH PROFESSOR	Carsey School	B.S.	University of Wisconsin	1975
			M.S.	Harvard University	1979
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Swartz, Erik E*	PROFESSOR	Kinesiology	B.S.	Saint Bonaventure University	1995
			M.A.	Western Michigan University	1996
			Ph.D.	University of Toledo	2000
Swift, M Robinson*	PROFESSOR	Mechanical Engineering	B.S.	University of New Hampshire	1971
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Talay, Melike Billur*	ASSOCIATE PROFESSOR	Marketing	B.A.	University of Jordan, Amman	2002
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Talpin, Emilie V	LECTURER	Languages, Literatures, & Cultures	M.S.	Univ of Burgundy in Dijon	2004
			M.S.	Miami University	2008
Tarr, Matthew D	ASSOCIATE STATE SPECIALIST/PROFESSOR	Natural Resources	B.S.	University of New Hampshire	1996
			M.S.	University of New Hampshire	1999
			A.A.S.	University of New Hampshire	2002
Tavares, Theodore S	ASSISTANT PROFESSOR	Engineering Technology Program	S.B.	Massachusetts Institute of Technology	1984
			S.M.	Massachusetts Institute of	1986

				Technology	
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Taylor, James Thomas*	PROFESSOR	Natural Resources & The Environment	B.S.	University of Tennessee	1966
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Taylor, Rosemary A*	ASSISTANT PROFESSOR	Nursing	B.F.A.	New York University	1988
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Tenczar, Anthony	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.A.	University of Massachusetts - Amherst	1978
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Teng, Xiaowei *	ASSOCIATE PROFESSOR	Chemical Engineering	B.S.	East China University of Science and Technology	2001
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Terry, Joseph L	LECTURER	Communication	B.S.	University of Illinois at Urbana-Champaign	2000
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Thomsen, Linda Jean	SENIOR LECTURER	Languages, Literatures, & Cultures	B.A.	University of Connecticut	1975
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Thurston, Filip JM	LECTURER	Thompson School of Applied Science	B.A.	York College	2009
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Tisa, Louis S*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	University of Windsor, Canada	1976
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Towne, Benjamin M	CLINICAL ASSISTANT PROFESSOR	Kinesiology	B.S.	Lyndon State College	1999
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Townson, David H*	PROFESSOR	Molecular, Cellular, & Biomedical	B.S.	Michigan State University	1983
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Turner, Heather A*	PROFESSOR	Sociology	B.A.	University of Western Ontario, Canada	1985
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Upham, David Michael	LECTURER	Music	B.A.	Luther College	1992
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Upham, Elsa M	LECTURER	English	B.A.	Academy of Montpellier, France	1992
			M.A.	Paul Valery University, France	1996
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			M.S.	University of New Hampshire	1993
			Ph.D.	University of New	2000

Vashisth, Harish *	ASSISTANT PROFESSOR	Chemical Engineering	B.Tech.	Hampshire National Instit of Tech India	2005
			Ph.D.	Drexel University	2010
Vasquez, Bernard J*	RESEARCH PROFESSOR	Space Science Center	B.S.	Rensselaer Polytechnic Institute	1987
			Ph.D.	University of Maryland	1992
Vasudevan, Palligarnai T*	INTERIM PROVOST & VP-ACAD AFFAIR	Provost Office	B.S.E.T.	University of Madras, India	1974
			B.S.E.T.	University of Madras, India	1974
			M.S.	State University of New York at Buffalo	1984
			M.S.	State University of New York at Buffalo	1984
			Ph.D.	Clarkson University	1988
			Ph.D.	Clarkson University	1988
Vellucci Leaver, Sherry L	PROFESSOR	Library Administration	B.A.	Rutgers University	1972
			M.S.	Drexel University	1983
			D.L.S.	Columbia University in the City of New York	1995
			Ph.D.	Columbia University in the City of New York	1995
Verrot, Trevor M	LECTURER	Art and Art History	B.A.	University of Michigan	2006
			M.A.	Yale University	2007
			M.Phil.	Yale University	2010
Vigil, Ryan H	LECTURER	Music	B.M.	Manhattan School of Music, New	2000
			M.A.	Tufts University	2004
			M.M.A.	Yale University	2006
			D.M.A.	Yale University	2010
Vincenzi, Marco	LECTURER	Economics	M.S.	Carnegie Mellon University	2010
			Ph.D.	Carnegie Mellon University	2012
Violette, Catherine A*	FULL EXTENSION STATE SPECIALIST/PROFESSOR	Food and Agriculture	B.S.	University of Maine	1974
			B.S.	University of Maine	1975

			M.S.	University of Maine	1977
			Ph.D.	Pennsylvania State University	2002
Vorenberg, Amy	LAW PROFESSOR	UNHL Legal Skills	B.A.	Hamilton College	1979
			J.D.	Northeastern University	1984
Vroman, Kerryellen G*	ASSOCIATE PROFESSOR	Occupational Therapy	B.A.	Massey University, New Zealand	1990
			M.S.	McMaster University, Canada	1992
			Ph.D.	Massey University, New Zealand	2006
Vroman, Neil B*	ASSOCIATE DEAN	Dean's Office - Health & Human Svcs	B.S.	Colgate University	1975
			Certificate	New York University	1976
			Ph.D.	Pennsylvania State University	1982
Wake, Cameron P*	RESEARCH PROFESSOR	Earth Systems Research Center	B.S.	University of Ottawa	1984
			M.A.	Wilfrid Laurier University, Canada	1987
			Ph.D.	University of New Hampshire	1987
			M.A.	Wilfrid Laurier University, Canada	1993
			Ph.D.	University of New Hampshire	1993
Walker, Charles W*	PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	Miami University	1969
			M.S.	Cornell University	1973
			Ph.D.	Cornell University	1976
Wallace, Mary S	LECTURER	Dean's Office - Liberal Arts	B.A.	Mount Holyoke College	2000
			M.A.	Brown University	2006
			Ph.D.	Brown University	2010
Wallace, Michael	LECTURER	Communications Disorders	B.A.	Gallaudet University	1976
			M.A.	New York University	1981
Walsh, Susan A	ASSOCIATE PROFESSOR	Humanities	B.A.	Kenyon College	1979

			M.A.	Duke University	1980
			Ph.D.	Duke University	1988
Walsh, Wendy A*	RESEARCH ASSOCIATE PROFESSOR	Family Research Lab	B.A.	Bates College	1989
			M.S.	University of New Hampshire	1997
			Ph.D.	University of New Hampshire	2002
Wang, Haiying *	ASSISTANT PROFESSOR	Mathematics & Statistics	B.E.	Beihang University, China	2003
			M.S.	Chinese Academy of Sciences, China	2009
			Ph.D.	University of Missouri - Columbia	2013
Wang, Jing *	ASSOCIATE PROFESSOR	Decisions Sciences	B.A.	Nankai University, China	1994
			M.A.	Bowling Green State University	2001
			M.B.A.	Kent State University	2003
			Ph.D.	Kent State University	2007
Wang, Yige	LECTURER	Languages, Literatures, & Cultures	B.A.	Zhejiang University, China	1983
			M.A.	University of New Hampshire	1989
			M.A.	University of New Hampshire	1992
Ward, Larry G*	RESEARCH ASSOCIATE PROFESSOR	Center for Coastal & Ocean Mapping	B.A.	University of New Hampshire	1972
			M.S.	University of South Carolina	1974
			Ph.D.	University of South Carolina	1978
Ware, Colin *	PROFESSOR	Computer Science - Joint Positions	B.S.	University of Durham, United Kingdom	1972
			M.A.	Dalhousie University, Canada	1973
			Ph.D.	University of Toronto, Canada	1980
Warkentin, Jennifer B	CLINICAL ASSISTANT PROFESSOR	Psychology	B.S.	Georgia Southern University	2000
			M.S.	Ohio University	2003

			Ph.D.	Ohio University	2008
Warner, Rebecca M*	PROFESSOR	Psychology	B.A.	Carnegie Mellon University	1973
			Ph.D.	Harvard University	1978
Watson, Deborah E	ASSOCIATE PROFESSOR	Reference	B.A.	University of New Hampshire	1963
			M.A.	University of New Hampshire	1967
			M.S.	Simmons College	1972
Watson, Winsor H*	PROFESSOR	Biological Sciences	B.A.	Wesleyan University	1972
			Ph.D.	University of Massachusetts - Amherst	1978
Watters, David H*	PROFESSOR	English	A.B.	Dartmouth College	1972
			Ph.D.	Brown University	1978
Watts, Alison W*	RESEARCH ASSISTANT PROFESSOR	Environmental Research Group	B.A.	Mount Holyoke College	1984
			M.S.	University of Arizona	1992
			Ph.D.	University of New Hampshire	2006
Weber, Thomas C*	ASSISTANT PROFESSOR	Mechanical Engineering	B.S.	University of Rhode Island	1997
			M.S.	University of Rhode Island	2000
			Ph.D.	Pennsylvania State University	2006
Webster, Nathan S	LECTURER	English	B.A.	University of New Hampshire	1995
			M.F.A.	University of New Hampshire	2009
Weiner, James L*	ASSOCIATE PROFESSOR	Computer Science	B.S.	University of Massachusetts - Amherst	1973
			M.S.	University of Wisconsin	1975
			Ph.D.	University of California - Los Angeles	1979
Weintraub, Scott E*	ASSISTANT PROFESSOR	Languages, Literatures, & Cultures	A.B.	Dartmouth College	2001
			Ph.D.	Emory University	2006
				University of New	

Wells, Melissa *	ASSOCIATE PROFESSOR	Social Work	B.A.	Hampshire	1991
			M.S.W.	University of Minnesota	1995
			Ph.D.	University of New Hampshire	2003
Westervelt, Charlene A	CLINICAL INSTRUCTOR	Education	B.A.	University of New Hampshire	1980
			M.A.	University of New Mexico	1997
Wharton-McDonald, Ruth M*	ASSOCIATE PROFESSOR	Education	A.B.	Brown University	1985
			Ed.M.	Harvard University	1989
			Ph.D.	University at Albany	1996
Whistler, Cheryl A*	ASSOCIATE PROFESSOR	Molecular, Cellular, & Biomedical	B.A.	University of California - San Diego	1991
			Ph.D.	Oregon State University	2000
White, Barbara Prudhomme*	ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	University of Minnesota	1978
			Ph.D.	University of Minnesota	1999
White, Christopher M*	ASSOCIATE PROFESSOR	Mechanical Engineering	B.S.	State University of New York	1994
			M.S.	State University of New York	1996
			Ph.D.	Yale University	2001
White, Melinda M	LECTURER	English	B.S.	Utah State University	2005
			M.S.	Utah State University	2007
			Ph.D.	Virginia Commonwealth University	2012
Whitehead, Tamsin A	LECTURER	Women's Studies Program	B.A.	University of London, United Kingdom	1978
			M.F.A.	Vermont College of Fine Arts	2005
Whittier, Duane H	PROFESSOR	Philosophy	B.A.	University of New Hampshire	1950
			M.A.	University of Illinois at Urbana-Champaign	1952
			Ph.D.	University of Illinois at Urbana-Champaign	1961

Wible, James R*	PROFESSOR	Dean's Office	A.B.	Wheaton College	1973
			Ph.D.	Pennsylvania State University	1980
Wilburn, Reginald A*	ASSOCIATE PROFESSOR	English	B.A.	University of the District of Columbia	1999
			M.A.	University of Connecticut	2001
			Ph.D.	University of Connecticut	2009
Wilcox, John M	CLINICAL ASSISTANT PROFESSOR	Occupational Therapy	B.S.	Syracuse University	1999
			M.S.	San Jose State University	2007
			D	Rocky MT Univ of Health Prof	2010
Wilder, Allison *	ASSOCIATE PROFESSOR	Recreation Management & Policy	B.S.	Ithaca College	1984
			M.S.	State University of New York at Cortland	1992
			Ph.D.	Virginia Commonwealth University	2008
Wiley, Mark R	ASSOCIATE STATE SPECIALIST/PROFESSOR	Youth and Family	B.A.	Dartmouth College	1975
			M.S.	University of New Hampshire	1980
Williams, Ann J*	ASSOCIATE PROFESSOR	English	B.A.	University of New Hampshire	1980
			M.A.	University of New Hampshire	1990
			M.F.A.	University of Iowa	1997
Williams, Donald M	LECTURER	Art and Art History	B.F.A.	University of New Hampshire	1977
Williams, Leah D	SENIOR LECTURER	English	B.A.	Indiana University - Bloomington	1997
			M.F.A.	University of Iowa	2004
Willkomm, Therese *	CLINICAL ASSOCIATE PROFESSOR	Occupational Therapy	B.S.	University of Wisconsin	1982
			M.S.	Drake University	1984
			Certificate	University of Pittsburgh	1997
			Ph.D.	University of Pittsburgh	1997

Wilson, Fiona S*	CLINICAL ASSOCIATE PROFESSOR	Management	M.B.A.	Simmons College	1997
			Ph.D.	Boston University	2009
Winans, Daniel R	LECTURER	Hospitality Management	B.S.	University of New Hampshire	1993
			A.O.S.	Culinary Institute of America	1999
			M.A.	University of Gastronomic Science, Italy	2007
Winans, Katharine A	LECTURER	Chemistry	B.A.	Williams College	1989
			M.A.	University of Houston	1995
			Ph.D.	University of California - Berkeley	2001
Withers, Sara A	LECTURER	Anthropology	B.A.	Bowdoin College	1999
			B.A.	Brandeis University	2002
			Ph.D.	Brandeis University	2009
Witt, Charlotte E	PROFESSOR	Philosophy	B.A.	Swarthmore College	1975
			M.A.	Georgetown University	1978
			Ph.D.	Georgetown University	1980
Wollheim, Wilfred M*	ASSISTANT PROFESSOR	Natural Resources & The Environment	B.S.	Cornell University	1989
			M.S.	University of Wyoming	1994
			Ph.D.	University of New Hampshire	2005
Wolper, Ethel S*	ASSOCIATE PROFESSOR	History	B.A.	University of Chicago	1982
			M.A.	University of Chicago	1984
			Ph.D.	University of California - Los Angeles	1994
Wood, Craig H*	ASSOCIATE PROFESSOR	Decisions Sciences	A.B.	Stanford University	1972
			M.B.A.	University of Chicago	1974
			Ph.D.	Ohio State University	1991
Wood, Deanna D	ASSOCIATE PROFESSOR	Reference	B.A.	Reed College	1969
			M.A.	University of Denver	1972
			M.P.A.	University of New Hampshire	1995

Woods, Leah K	ASSOCIATE PROFESSOR	Art and Art History	B.A.	DePaul University	1994
			M.F.A.	Rochester Institute of Technology	2000
Woodward, Robert S*	PROFESSOR	Health Management - Joint Positions	B.S.	Haverford College	1965
			Ph.D.	Washington University - St Louis	1972
Woodward, William R*	PROFESSOR	Psychology	B.A.	Harvard University	1967
			M.A.	Princeton University	1969
			M.A.	Yale University	1973
			Ph.D.	Yale University	1975
Wosnik, Martin M*	ASSOCIATE PROFESSOR	Mechanical Engineering	B.S.	Technical University of Darmstadt, Germany	1992
			M.S.	State University of New York at Buffalo	1994
			Ph.D.	State University of New York at Buffalo	2000
Wraith, Jon M*	DEAN	Dean's Office - LS & A	A.A.	Butte Community College	1981
			B.S.	Humboldt State Univ	1984
			M.S.	Utah State University	1986
			Ph.D.	Utah State University	1989
Wright, Peter S	PROFESSOR	UNHL Clinic	B.A.	Pennsylvania State University	1976
			J.D.	Franklin Pierce Law Center	1980
Wright, Steven C*	PROFESSOR	Kinesiology	B.S.	St. Lawrence University	1979
			M.Ed.	Boston University	1980
			Ed.D.	Boston University	1992
Wu, Kang *	ASSISTANT PROFESSOR	Chemical Engineering	B.S.	Tianjin University, China	2003
			M.S.	University of Illinois at Urbana-Champaign	2008
			Ph.D.	University of Illinois at Urbana-Champaign	2010
Xiao, Jingfeng *	RESEARCH ASSOCIATE PROFESSOR	Earth Systems Research Center	B.S.	Lanzhou University, China	1997

			M.S.	Beijing University, China	2000
			Ph.D.	University of North Carolina at Chapel Hill	2006
Xie, Wenjuan *	ASSOCIATE PROFESSOR	Accounting and Finance	B.B.A.	Peking University, China	2000
			M.A.	Peking University, China	2002
			Ph.D.	University of Wisconsin - Madison	2008
Xu, Le *	ASSOCIATE PROFESSOR	Accounting and Finance	B.S.	Beijing University, China	1999
			Ph.D.	University of Massachusetts - Amherst	2003
Yalcinkaya, Goksel *	ASSOCIATE PROFESSOR	Marketing	B.S.	Aegen University, Turkey	1993
			M.B.A.	Suffolk University	1998
			M.S.	Northeastern University	2007
			Ph.D.	Michigan State University	2007
Yarensky, Peter	PRINCIPAL LECTURER	Psychology	B.A.	Univ of Hartford	1972
			M.A.	University of New Hampshire	1974
			Ph.D.	University of New Hampshire	1983
Yi, Nan *	ASSISTANT PROFESSOR	Chemical Engineering	B.S.	Quigdao Univ Quigdao, China	2000
			M.S.	Fudan University, China	2005
			Ph.D.	Tufts University	2012
Yoon, Se Young *	ASSISTANT PROFESSOR	Electrical & Computer Eng Dept	B.S.	Washington University - St Louis	2005
			M.S.	Washington University - St Louis	2005
			Ph.D.	University of Virginia	2011
Yost, Israel J	LECTURER	Computer Science	B.A.	Upsala College	1968
			M.S.	University of New Hampshire	1991
				Tapei National	

Yu, Lih-Hwa	LECTURER	Theatre & Dance	B.F.A.	University of the Arts, Taiwan	2010
			M.F.A.	University of Texas	2010
Yu, Qiaoyan *	ASSISTANT PROFESSOR	Electrical & Computer Eng Dept	B.S.	Xidian University, China	2002
			B.S.	Zhejiang University, China	2004
			M.S.	Zhejiang University, China	2005
			M.S.	University of Rochester	2007
			Ph.D.	University of Rochester	2011
Zagar, Lawrence E	LECTURER	Mechanical Engineering	B.S.	Louisiana State University	1981
			M.S.	Louisiana State University	1983
			Ph.D.	Louisiana State University	1986
Zago, Susan D	ASSISTANT PROFESSOR	UNHL Library	B.A.	Westfield State College	1991
			M.L.I.S.	Simmons College	1995
			J.D.	Western New England Coll	2001
Zang, Jiadong *	ASSISTANT PROFESSOR	Physics	B.S.	Fudan University, China	2007
			Ph.D.	Fudan University, China	2012
Zang, Richard A	ASSOCIATE PROFESSOR	Natural & Social Sciences	B.Tech.	State University of New York at Binghamton	1978
			M.A.	State University of New York at Binghamton	1980
			Ed.D.	Rutgers University	1994
Zercher, Charles Kent*	ASSOCIATE DEAN	Dean's Office - CEPS	B.A.	Messiah College	1981
			M.S.	State University of New York at Buffalo	1984
			Ph.D.	Notre Dame College	1989
Zhang, Jichun *	RESEARCH ASSISTANT PROFESSOR	Space Science Center	B.S.	Hebei Normal University, China	1994
			M.S.	Peking University,	2001

			Ph.D.	China University of Michigan	2006
Zhang, Yitang *	PROFESSOR	Mathematics & Statistics	B.S.	Peking University, China	1982
			M.S.	Peking University, China	1984
			Ph.D.	Purdue University	1991
Zickell, Carol A	LECTURER	English	B.S.	Worcester State College	1970
			M.S.	University at Albany	1974
Zielinski, Mark D	LECTURER	Music	M.M.	Indiana University	1998
			B.M.Ed.	Indiana University	1999
Ziervogel, Kai *	RESEARCH ASSISTANT PROFESSOR	Ocean Process Analysis Lab	Ph.D.	University of Rostock, Germany	2004
			M.S.	University of Rostock, Germany	2005
Zimmerman, Dawn R	CLINICAL ASSISTANT PROFESSOR	Communications Disorders	B.A.	Baldwin-Wallace College	1994
			M.S.P.	University of South Carolina	1998

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**Graduate School**

Introduction

Programs of Study

Undergraduate Course Catalog 2009-2010

Graduate School ▼

» <http://www.gradschool.unh.edu>

Dean: Harry J. Richards

Associate Dean: Cari A. Moorhead

Introduction ▼

The Graduate School offers a wide range of programs leading to the master's degree, one program leading to the C.A.G.S., and a number of programs leading to the Ph.D. degree. Graduate programs have been developed systematically to achieve academic excellence by careful utilization of institutional resources and regional opportunities. A highly qualified graduate faculty supervises programs and establishes the requirements for admission and degrees, which are administered by the dean of the Graduate School. The Graduate School extends its programs to central and southern New Hampshire through the Center for Graduate and Professional Studies. Located on the campus at the University of New Hampshire at Manchester, the center offers a number of part-time professional master's programs.

Admissions ▼

Persons holding a baccalaureate degree from an accredited college or university and wishing to take graduate-level courses at the University of New Hampshire as part of a graduate degree program must apply for admission to the Graduate School. Admission to the Graduate School is both limited and competitive and is based solely upon academic qualifications and potential.

Applications for admission and the Graduate Catalog, containing detailed descriptions of graduate programs, may be obtained from the Graduate School, Thompson Hall, 105 Main Street, Durham, N.H. 03824-3547 or www.gradschool.unh.edu.

Early Admission/Dual Credit-University of New Hampshire Seniors

Five-year Bachelor's/Master's Degrees (early admission)

Qualified senior students at the University of New Hampshire may be admitted to the Graduate School provided they have followed normal application procedures; they must have been

admitted for the semester in which they wish to enroll in courses for graduate credit. A 3.20 cumulative grade point average is normally required to be considered for early admission. Such seniors are normally admitted prior to the start of their last undergraduate semester. Seniors who have been admitted under early admission may register for *a maximum of 12 credits* of graduate-level courses prior to completing their bachelor's degree. Such courses may, upon recommendation of the department and approval of the Graduate School, count toward both a bachelor's and master's degree.

Upon admission and prior to the beginning of the semester, students must meet with the Graduate School academic counselor to complete and approve dual credit forms.

Financial Assistance ▼

Graduate assistantships are available in most departments. These involve part-time work in connection with the University's instructional or research activities. University awards, such as tuition scholarships, are also available to qualified students. Assistantships and scholarships are awarded on the basis of academic qualifications.

Financial assistance in the form of college work study and loans may be available through the Financial Aid Office.

UNH Center for Graduate and Professional Studies ▼

The Center for Graduate and Professional Studies offers a wide range of post-baccalaureate programs for professionals in business, education, social services, healthcare, government, and related fields. All graduate programs supported by the center are directed by UNH faculty and are administered by the UNH Graduate School. Currently, master's degree or other post-baccalaureate courses and programs are offered at UNH Manchester in Business Administration, Counseling, Educational Administration, Teacher Education, Public Administration, Public Health, Social Work, and Nursing.

Professional Development and Training

Professional Development and Training, part of UNH's Center for Graduate and Professional Studies, serves individuals, businesses, and organizations in New Hampshire and surrounding regions by offering a wide range of professional development opportunities throughout the year, including one-day seminars, special institutes and conferences, and short-term Certificate Programs.

Programs are designed to assist professionals in developing new or advanced knowledge and

skills in a variety of fields. Instruction provides a balance of theory and practical skills that participants can immediately apply to the workplace.

Offerings focus on pertinent topics in business, management and supervision, professional coaching, human resources, computers, CAD, teaching and school administration, health and human services, engineering, manufacturing, surveying, soil science, town and state planning, fundraising and grant writing, and more.

Training is offered on the Durham campus, at UNH Manchester, and at the UNH training facility at Pease International Tradeport in Portsmouth.

From time to time, institutes and conferences are held to address current topics of concern at an in-depth level.

Professional Development and Training also offers customized training services—helping companies assess their training needs, and then designing and delivering customized training to meet these needs.

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Continuing Education and Summer Session

Introduction Programs of Study

Undergraduate Course Catalog 2009-2010 Continuing Education and Summer Session ▼

» <http://www.learn.unh.edu/>

Introduction ▼

Continuing Education provides public access to higher education for individuals not formally admitted into a UNH degree program. Taking courses as a non-degree student is an excellent way to prepare for matriculation into a degree program, help advance or change careers, or study a topic of interest.

Non-Degree Student Status ▼

Undergraduate Undergraduate courses (numbered 200-799) are open to individuals with a high school diploma or GED. Individuals may register for a maximum of 11 credits per term without special permission.

Graduate Graduate courses (numbered 800-999) are open to individuals with a bachelor's degree from an accredited college or university. Individuals may register for a maximum of 8 credits per term without special permission.

Full-Time Special Student Status ▼

Undergraduate Non-degree students who wish to register for 12 or more credits in a single semester must receive written permission from Undergraduate Admissions. Special tuition and fee rules apply. Call (603) 862-1360 for more information.

Graduate Non-degree students who wish to register for 9 or more credits in a single semester must receive permission from the University Advising and Career Center. Students approved for this special status must pay full-time graduate tuition and fees at the time of registration. Call (603) 862-2064 for details.

Pre-Admission Program ▼

The pre-admission program allows students an opportunity to strengthen their academic credentials in preparation for admission to a baccalaureate program by completing coursework that satisfies both general education and introductory level major requirements. Students complete two semesters in the program, register for up to 12 credits per semester, and then transfer to a baccalaureate program upon successful completion of the outlined criteria. Visit <http://admissions.unh.edu> or call (603) 862-1360 for details.

CATS Program ▼

CATS stands for “Challenging Academically Talented Students” and is open to highly motivated and academically strong high school juniors and seniors who want to enrich their academic experience with a college-level course. Students may choose from freshman level courses (400-500 numbered courses). For an application or more information, please visit <http://admissions.unh.edu/cats/index.html> or call (603) 862-1360.

Prerequisites ▼

Individuals are responsible for meeting all course prerequisites before registering for classes. Visit www.learn2.unh.edu/courses/prerequisites.html for undergraduate and graduate course descriptions and prerequisite information.

Academic Standards and Expectations ▼

A cumulative grade-point average of 2.00 (C grade) is the minimum acceptable level for undergraduate work at the University. The records of special undergraduate students are examined periodically, and academically deficient students may be warned or excluded from registering. All non-degree students are expected to become familiar with and adhere to the current UNH *Student Rights, Rules and Responsibilities* available online at <http://www.unh.edu/student/rights>.

Student Resources ▼

Non-degree students are encouraged to take advantage of the wide range of resources available on campus. Visit www.learn2.unh.edu/resources/ for a complete list of student services and campus resources.

Professional Development and Training ▼

Professional Development and Training, an affiliate office of the Graduate School, serves individuals, businesses, and organizations by offering a wide range of non-credit professional development opportunities throughout the year. Programs are designed to assist professionals in developing new or advanced knowledge and skills in a variety of fields. Training is offered in Durham, Manchester, and Portsmouth. For more information, visit www.learn.unh.edu or call (603) 862-4234.

Summer Session ▼

Summer Session provides a wide range of credit and non-credit courses, institutes, and programs in a variety of term lengths from May to August. From youth enrichment programs to advanced level institutes, Summer Session provides educational opportunities for learners of all ages. On-campus housing is available for students enrolled in summer credit courses. Please note that summer credit courses are held to the same academic standards as regular term courses but are typically offered at an accelerated pace. For more information, please visit www.learn2.unh.edu or call (603) 862-2015.

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College of Engineering and Physical Sciences

[Introduction](#)
[Degrees](#)
[Interdisciplinary
Programs](#)
[Other Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Engineering and Physical Sciences ▼

» <http://www.ceps.unh.edu>

Dean: Joseph C. Klewicki

Associate Dean: Janet W. Campbell , Robert M. Henry

Introduction ▼

The College of Engineering and Physical Sciences provides an opportunity for students to achieve educational objectives appropriate to their interests in engineering, computer science, mathematics, the physical sciences, and the teaching of mathematics and physical sciences. The college offers an education in each of its primary disciplines leading to the bachelor of science, as well as bachelor of art degrees with majors in mathematics and each of the three physical sciences. All programs include an opportunity for study in the arts, humanities, and social sciences.

The key to an undergraduate program in the college is flexibility, with a strong emphasis on personal and individualized education. In addition to specific programs, a wide range of options is available. Special programs can be developed to meet the specific interests of individual students.

Degree Requirement

MATH 425 and 426 (Calculus I and II) or the equivalent in transfer credits or advanced placement approved by the Department of Mathematics and Statistics are required by all departments of the college (except for information technology major). The prerequisites for calculus are three years of college-preparatory mathematics, including a half-year of trigonometry. Before students can register for MATH 425, they are required to take the Mathematics Placement Test.

Mathematics Placement

First-year students arrive with a wide range of mathematical skills based on high school preparation. The college wants students to have a solid mathematics foundation so that they will enjoy an enriched first-semester experience. Mathematics development will be assessed

during June orientation and students will be enrolled in the class that will allow them to continue that development. The initial entry course is Analysis and Applications of Functions (MATH 418). However, a placement evaluation will be given to allow a student to place out of MATH 418 into MATH 425 (Calculus I). Students with AP credit for Calculus I and/or Calculus II may elect to accept those credits and continue with a math course at the next level.

Accreditation

The baccalaureate-level programs in chemical, civil, computer, electrical, environmental, and mechanical engineering are accredited by the Engineering Accreditation Commission of **ABET**, Inc. The baccalaureate-level program in computer science is accredited by the Computing Accreditation Commission of ABET, Inc. ABET contact information: 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700. The Department of Chemistry's undergraduate bachelor of science program is approved by the American Chemical Society.

Tech Courses

The following courses are designed for students of the college and for other majors within the University. These courses are offered through and administered by the Dean's Office.

TECH 400, Introduction to CEPS Programs, 1 cr.

TECH 444, Symmetry in Nature, The Arts, and Daily Life, 4 cr.

TECH 564, Fundamentals of CAD, 3 cr.

TECH 583, Technology: Cultural Aspects, 4 cr.

TECH 583H, Honors/Technology: Cultural Aspects, 4 cr.

TECH 601, Fundamentals Examination Review Course, 1 cr.

TECH 685, Budapest Program, 20 cr.

TECH 696, Independent Study, 1 to 4 cr.

TECH 797, Undergraduate Ocean Research Project, 2 cr.

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College of Engineering and Physical Sciences

Introduction

Degrees

- Bachelor of Arts
- Bachelor of Science

Interdisciplinary Programs

Other Programs

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Engineering and Physical Sciences ▼

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Bachelor of Arts ▼

Programs leading to a bachelor of arts degree are offered in the departments of chemistry, earth sciences, mathematics, and physics. These programs provide a broad liberal education along with a major in one of these fields. See [University Academic Requirements](#) for requirements for the bachelor of arts degree.

Chemistry

Chemistry and Physics Teaching

Earth Science Teaching

Earth Sciences

Oceanography

Mathematics

Physics

Bachelor of Science ▼

The programs leading to the bachelor of science degree, offered in each of the departments of the college, emphasize students' preparation for a professional career and continuing or graduate education.

The degree requirements for the bachelor of science include the University [general education requirements](#) and the specific departmental requirements for graduation. A minimum grade-point average of 2.0 must be achieved. Graduation credit requirements established by the departments range from 128 to 134. There are entrance requirements in some programs, and it is not possible to guarantee all change-of-major requests.

Chemical Engineering*

Bioengineering
Energy
Environmental Engineering

Chemistry*

Civil Engineering*

Computer Engineering*

Computer Science*

Bioinformatics

Electrical Engineering*

Environmental Engineering*†

Industrial Process
Municipal Process

Environmental Sciences*

Ecosystems
Hydrology
Soil and Watershed Management

Geology*

Information Technology

Mathematics*

Mathematics Education*

Elementary
Middle/Junior High
Secondary

Mathematics, Interdisciplinary

Computer Science
Economics
Electrical Science
Physics
Statistics

Mechanical Engineering*

Physics*

Astronomy
Chemical Physics
Materials Science

*Designated degree (the name of the specialization is on the diploma, e.g., B.S. in chemistry).

†Multidisciplinary; i.e., offered in collaboration with two departments.





College of Engineering and Physical Sciences

[Introduction](#)
[Degrees](#)
[Interdisciplinary
Programs](#)

- [Interdisciplinary
Programs](#)

[Other Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Engineering and Physical Sciences ▼

» <http://www.ceps.unh.edu>

Interdisciplinary Programs ▼

Majors

Bachelor of Science in Environmental Engineering

The environmental engineering program consists of two emphases: industrial processes (IP) and municipal processes (MP).

Bachelor of Science in Environmental Sciences

The environmental sciences program is offered jointly with the College of Life Sciences and Agriculture and consists of three options: hydrology, soil and watershed management, and ecosystems.

Minors

Interdisciplinary minors enable students to obtain experience in a specialized area and to retain identification with their major professional area. The college's interdisciplinary minors are:

Applied mathematics

Environmental engineering

Geology

Information technology

Materials science

Mathematics

Mechanical engineering

Ocean engineering

Oceanography

Physics

Statistics

For requirements regarding minors, see [University Academic Requirements](#).

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College of Engineering and Physical Sciences

[Introduction](#)
[Degrees](#)
[Interdisciplinary
Programs](#)
[Other Programs](#)

- [Independent Study and Projects](#)
- [Study Abroad Programs](#)
- [Preparing for Teaching](#)
- [Combined Programs of Study](#)

[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Engineering and Physical Sciences ▼

» <http://www.ceps.unh.edu>

Independent Study and Projects ▼

All departments within the college offer independent study and/or projects. The content of these courses varies based upon current scientific and technological needs and student and faculty interest.

Permission of the instructor and/or department chairperson is required. (See the course descriptions for the independent study and project courses and for specific requirements.)

Students interested in working with a faculty member on a project or independent study should discuss this with their academic adviser.

Research Opportunities

The talents and expertise of the faculty in all departments are reflected in the number of ongoing research projects. Undergraduates are included in many of these research projects with the intent that they discover and foster their creative talents. In funded research projects, students may have an opportunity to receive pay while learning.

The college has world-class laboratories and computer facilities in the areas of coastal and ocean mapping, space science, environmental engineering and science, fluid dynamics, information systems, materials science, nanotechnology, sustainable energy, and medical imaging. These and other ongoing research areas within the college are described on the college's website: www.ceps.unh.edu/research.

Students have the opportunity to acquire applied experience by working with faculty members who undertake client-sponsored professional projects in technical and managerial areas for business and industry and for federal, state, and local governments.

Special Provisions

The requirement of a given course in any prescribed curriculum may be waived by the faculty of a student's college. This rule offers students the opportunity to develop a somewhat

individualized plan of study with intellectual incentives and opportunities in addition to those in a regular curriculum. The student's petition must be approved by his/her major adviser and the dean of the college. This power usually will be delegated by the faculty to the dean or to a committee. (Senate Rule 05.21(s): Waiver of Requirements in a Prescribed Curriculum.)

A student with senior status and a grade point average of 3.2 may petition to take a graduate course for undergraduate credit. In addition, upon the recommendation of the department chairperson, a superior student may be allowed to count credits from up to two 800-level courses toward both a bachelor's degree and a master's degree, provided that the student has been admitted to the master's program.

Study Abroad Programs ▼

Hungary

The College of Engineering and Physical Sciences provides its students with the opportunity to spend the fall semester of their junior year at the Budapest University of Technology and Economics (BME) in Budapest, Hungary. Courses at BME are taught in English and receive prior approval for degree credit. Students studying in Budapest maintain their status as UNH students, pay UNH tuition, and will be able to graduate from UNH on schedule. A general education course on the language, geography, and culture of Hungary, taken at BME, is strongly suggested. The foreign student office at BME appoints a Hungarian adviser for each student and assists students in obtaining housing either in dormitories or apartments. For more information, visit the program's Web site at www.ceps.unh.edu/academics/budapest/.

Scotland, Heriot-Watt University Exchange Program

College of Engineering and Physical Sciences students are eligible to participate in a spring semester exchange with Heriot-Watt University in Edinburgh, Scotland. The current program is designed for civil and environmental engineering majors. For more information, contact Ray Cook at (603) 862-1411 or the Center for International Education, Hood House.

Preparing for Teaching ▼

Students interested in mathematics education (elementary, middle/junior high, or secondary), chemistry and physics teaching, Earth science teaching, or general science teaching should refer to the appropriate department for a description of the program requirements.

Combined Programs of Study ▼

In addition to pursuing a single major, students may combine programs of study as follows:

Minors: See [University Academic Requirements](#); see also [Degrees and Major Programs of Study](#) and [Departmental Programs of Study](#).

Second majors: See [University Academic Requirements](#).

Interdisciplinary majors: Many departments in the college offer programs that combine a major with another field of interest. See the descriptions that follow.

Dual-degree programs: See [University Academic Requirements](#).

Student-designed majors: See [Special University Programs](#).

Other combined and interdisciplinary opportunities: See [Special University Programs](#).

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College of Engineering and Physical Sciences

[Introduction](#)
[Degrees](#)
[Interdisciplinary
Programs](#)
[Other Programs](#)
[Programs of Study](#)

- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science
- Earth Sciences
- Electrical and
Computer Engineering
- Environmental
Engineering
- International Affairs
(dual major)
- Mathematics and
Statistics
- Mechanical
Engineering
- Physics

Undergraduate Course Catalog 2009-2010

College of Engineering and Physical Sciences ▼

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Chemical Engineering (CHE) ▼

» <http://www.unh.edu/chemical-engineering/>

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Chairperson: Palligarnai T. Vasudevan

Professor: Dale P. Barkey, Russell T. Carr, Ihab H. Farag, Virendra K. Mathur, Palligarnai T. Vasudevan

Associate Professor: Nivedita R. Gupta

Assistant Professor: Qing Song, Xiaowei Teng

The Department of Chemical Engineering currently offers the undergraduate degree program in chemical engineering with options in bioengineering, energy, and environmental engineering. In addition, the College of Engineering and Physical Sciences offers an **interdisciplinary B.S. program in environmental engineering** with the participation of the chemical engineering and civil engineering departments.

The B.S. program in chemical engineering is accredited by the Engineering Accreditation Commission of **ABET**, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Chemical engineering is concerned with the analysis and design of processes that deal with the transfer and transformation of energy and material.

The practice of chemical engineering includes the conception, development, design, and application of physicochemical processes and their products; the development, design, construction, operation, control, and management of plants for these processes; and activities relating to public service, education, and research.

The curriculum prepares students for productive careers in industry or government and

provides a foundation for graduate studies. The college's program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy, environmental, or bioengineering.

Traditional employment areas in the chemical process industries include industrial chemicals, petroleum and petrochemicals, plastics, pharmaceuticals, metals, textiles, and food. Chemical engineers are also working in increasing numbers in the areas of energy engineering, pollution abatement, and biochemical and biomedical engineering; in addition, they are employed by many government laboratories and agencies as well as private industries and institutions.

Mission

The College of Engineering and Physical Sciences strives to prepare students for productive careers in industry or government as well as to provide a foundation for graduate studies. The college's program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy-, environmental-, or bioengineering.

Educational Objectives

The chemical engineering program seeks to provide an environment that enables students to pursue their goals in an innovative program with a diversity of offerings that is rigorous and challenging.

The program has the following major educational objectives with the expectation that graduates will have successful careers in the many diverse areas of the chemical engineering profession.

Depth: An understanding of the fundamental knowledge prerequisite for the practice of, or for advanced study in, chemical engineering, including its scientific principles, analysis, and design.

Breadth: A broad education, including knowledge of important current issues in engineering (with emphasis on the many diverse areas in chemical engineering), necessary for productive careers in the public or private sectors, or for the pursuit of graduate education.

Professionalism: Skills for clear communication and responsible teamwork, professional attitude and ethics that prepare graduates for the complex modern work environment and for lifelong learning.

Bachelor of Science in Chemical Engineering

Chemical engineering is concerned with the analysis and design of processes that deal with the transfer and transformation of energy and material.

The practice of chemical engineering includes the conception, development, design, and

application of physicochemical processes and their products; the development, design, construction, operation, control, and management of plants for these processes; and activities relating to public service, education, and research.

The curriculum prepares students for productive careers in industry or government and provides a foundation for graduate studies. The program emphasizes chemical engineering fundamentals while offering opportunities for focused study in energy-, environmental-, or bioengineering.

Traditional employment areas in the chemical process industries include industrial chemicals, petroleum and petrochemicals, plastics, pharmaceuticals, metals, textiles, and food. Chemical engineers also are working in increasing numbers in the areas of energy engineering, pollution abatement, and biochemical and biomedical engineering; in addition, they are employed by many government laboratories and agencies as well as private industries and institutions.

Graduates from the program have the ability to apply knowledge of mathematics, science, and engineering to identify, formulate, and solve chemical engineering problems as well as to design and conduct experiments safely and analyze and interpret data. They are prepared to pursue advanced studies in chemical engineering. Program graduates gain a sense of professional and ethical responsibility with the ability to apply environmental, safety, economic, and ethical criteria in the design of engineering processes. They learn to function in individual and group working environments, and learn skills in written and oral communication and the effective use of computers for engineering practice, including information search in the library and on the Internet. They also understand the need for lifelong learning and the significance of societal and global issues relevant to chemical engineering.

A minimum of 130 credits is required for graduation with the degree of bachelor of science in chemical engineering. There are nine electives in the chemical engineering curriculum. Five of these are for the general education requirements. The remaining four electives should consist of three chemical engineering electives and one additional technical elective.

Students are required to obtain a minimum 2.0 grade-point average in CHE 501-502 and in overall standing at the end of the sophomore year in order to continue in the major.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
ENGL	401	Freshman English	4	-

Math	425-426	Calculus I and II	4	4
PHYS	407	General Physics I	-	4
CHEM	405	General Chemistry	4	-
CHE	410	Energy and Environment	4	-
Electives (2)			-	8
Total			16	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
CHEM	683-684	Physical Chemistry I and II	3	3
CHEM	685-686	Physical Chemistry Laboratory	2	2
MATH	527	Differential Equations with Linear Algebra	4	-
CS	410	Introduction to Scientific Programming	-	4
PHYS	408	General Physics II	4	-
CHE	501-502	Introduction to Chemical Engineering I and II	3	3
Elective			-	4
Total			16	16

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
CHEM	651-652	Organic Chemistry	3	3
CHEM	653	Organic Chemistry Laboratory	2	-
CHE	601	Fluid Mechanics and Unit Operations	3	-
CHE	602	Heat Transfer and Unit Operations	-	3
CHE	603	Applied Mathematics for Chemical Engineers	4	-
CHE	604	Chemical Engineering Thermodynamics	-	4
CHE	612	Chemical Engineering Laboratory I	-	3
Electives (2)			4	4
Total			16	17

Senior Year

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Abbreviation	Course Number	Title	Fall	Spring
CHE	703	Mass Transfer and Stagewise Operations	3	-
CHE	707	Chemical Engineering Kinetics	3	-
CHE	708	Chemical Engineering Design	-	4
CHE	713	Chemical Engineering Laboratory II	3	-
CHE	752	Process Dynamics and Control	-	4
Electives (4)			8	8
Total			17	16

Bioengineering Option

Under this option, the required courses deal with the application of basic biological sciences and chemical engineering principles to the design and operation of large-scale bioprocesses for the production of high-value medicinal products, food and beverage, pharmaceutical, biomedical, genetic engineering products, and health care products. The elective courses permit the student to study topics of special interest in more depth or gain a broader perspective in bioengineering or some closely related subjects such as biochemistry or biotechnology experience in manufacturing or research. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the bioengineering option should declare their intention to the department faculty during the sophomore year. They may consult with P.T. Vasudevan, (603) 862-2298.

Required Courses

Abbreviation	Course Number	Title	Credits
CHE	761	Biochemical Engineering	4
CHE	762	Biomedical Engineering	4
Total			13
BCHM	658	General Biochemistry	3
BCHM	659	General Biochemistry Laboratory	2

Elective Courses

Abbreviation	Course Number	Title	Credits
CHE	695	Chemical Engineering Project	3-4
CHE	696	Independent Study	3-4

BIOL	404	Biotechnology and Society	4
BCHM	751	Principles in Biochemistry	4
BCHM	752	Principles in Biochemistry	4
BCHM	750	Physical Biochemistry	3
BTEC	210	Biotech Experience: Research* (NHBET, Pease)	4
BTEC	220	BioTech Experience:Manufacturing*	4
MATH	740	Design of Experiments I	4
Total			6-8

*BTEC 210 and BTEC 220 are cross-listed as MICR 655 and MICR 651

Energy Option

This option covers the major areas of current interest in the energy field. The required courses provide students with a general background knowledge of fossil fuels, nuclear power, solar energy, and other alternative energy resources. The elective courses will permit the student to study topics of special interest in more depth or gain a broader perspective on energy and some closely related subjects. Three courses are required, and a minimum of two additional courses of at least three credits each should be selected from the electives list. Students interested in the energy option should declare their intention to the department faculty during the sophomore year. They may consult with P.T. Vasudevan, (603) 862-2298.

Required Courses

Abbreviation	Course Number	Title	Credits
CHE	705	Natural and Synthetic Fossil Fuels	4
CHE	712	Introduction to Nuclear Engineering	4
Total			12
CHE	761	Biochemical Engineering	4

Elective Courses

Abbreviation	Course Number	Title	Credits
CHE	695	Chemical Engineering Project	3-4
CHE	696	Independent Study	3-4
ENE	772	Physicochemical Processes for Water/Air Quality	4

MATH	740	Design of Experiments I	4
Total			6-8

Environmental Engineering Option

The chemical engineering program, with its substantial requirements in chemistry, fluid dynamics, heat transfer, mass transfer, unit operations, and reaction kinetics, provides students with a unique preparation to deal with many aspects of environmental pollution problems. The option gives students a special focus on the application of chemical engineering principles and processes to the solution of problems relating to air pollution, water pollution, and the disposal of solid and hazardous waste. Three required courses must be selected, plus two electives from the electives list. Each course must carry a minimum of three credits. Students interested in the environmental engineering option should declare their intention to the department faculty during the sophomore year. They may consult with P.T. Vasudevan, (603) 862-2298.

Required Courses

Abbreviation	Course Number	Title	Credits
ENE	709	Fundamentals of Air Pollution and Its Control	4
ENE	772	Physicochemical Processes for Water/Air	4
ENE	742	Solid and Hazardous Waste Engineering	3
Total			11

Elective Courses

Abbreviation	Course Number	Title	Credits
CHE	695	Chemical Engineering Project	3-4
CHE	696	Independent Study	3-4
CHE	744	Corrosion	4
ENE	746	Bioenvironmental Engineering Design	3
ENE	749	Water Chemistry	4
MATH	740	Design of Experiments I	4
Total			6-8

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[^ back to top](#)

Chemistry (CHEM) ▼

» <http://www.unh.edu/chemistry/>

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Professor: Christopher F. Bauer, Arthur Greenberg, Richard P. Johnson, Howard R. Mayne, Glen P. Miller, W. Rudolf Seitz, Sterling A. Tomellini, Gary R. Weisman, Edward H. Wong, Charles K. Zercher

Associate Professor: Roy Paul Planalp

Assistant Professor: Margaret E. Greenslade, Gonghu Li, Samuel Pazicni

“Chemistry is everywhere. From agriculture to health care, chemistry extends life and improves its quality. From disposable diapers to space suits, chemistry provides new materials for clothing, shelter, and recreation. From computer chips to fiber optics, chemistry is the foundation of today’s high technology.” (American Chemical Society)

A study in chemistry is the pathway to multiple options. These options include careers in education, law, forensics, medicine, biotechnology, environmental protection, technical sales, pharmaceutical research, semiconductors, and industrial chemical production. The potential is limitless. Students interested in pursuing chemistry as an undergraduate degree have three options available to them, which are based on their career plans. These are the bachelor of science degree; a bachelor of arts degree; and a bachelor of arts, chemistry and physics teaching degree. Since the required chemistry courses in each degree program are the same the first year, it is easy to change from one program to another.

In general, a first-year student should register for the following courses, and this applies to all three programs: First Semester: Freshman Seminar, Chemistry 400; General Chemistry with lab, Chemistry 403; Calculus I, Mathematics 425; Second Semester: General Chemistry with lab, Chemistry 404; Calculus II, Mathematics 426; Freshman English, English 401W.

Requirements

1. Satisfy [general education requirements](#).
2. For specific course requirements, see the accompanying chart.

Bachelor of Arts in Chemistry

This curriculum offers students the opportunity to combine the chemistry major with other interests; for example, preprofessional programs, education, and business.

Requirements

1. Satisfy **general education requirements**.
2. Satisfy the **bachelor of arts degree requirements**.
3. For specific course requirements, see the accompanying chart.

Baccalaureate Degree Required Chemistry Courses

Course Number	Title	BS	BA
400	Freshman Seminar	x	x
403, 404	General Chemistry	x	x
517, 518	Quantitative Analysis	x	x
547 & 549	Organic Chemistry I	x	x
548 & 550	Organic Chemistry II	x	x
574	Introduction to Inorganic Chemistry	x	x
683 & 685	Physical Chemistry I	x	x
684 & 686	Physical Chemistry II	x	x
762 & 763	Instrumental Methods of Chemical Analysis	x	x
698	Seminar	x	x
699	Thesis	x	
755 & 756	Advanced Organic Chemistry	x	
774 & 775	Advanced Inorganic Chemistry	x	
776	Physical Chemistry III	x	
708	Spectroscopic Investigations of Organic Molecules		

Other Requirements

All majors: MATH 425 and 426, Calculus I and II.

B.A.s are required to take 698, Seminar; it also meets writing intensive requirements.

B.S. degree: PHYS 407-408, General Physics I and II; BCHM 658 or 751, Biochemistry; one chemistry-related course.†

B.A. degree, chemistry major: PHYS 407, General Physics I, or PHYS 401-402, Introduction to

Physics I and II; two other CHEM courses, except 698, or two approved chemistry-related courses.†

† Suggested courses: MATH 527, 528; PHYS 505; EE 620; BCHM 658, 751.

Bachelor of Arts, Chemistry and Physics Teaching

This major is designed for students who wish to teach chemistry and physics in secondary schools. The number of positions available for teaching chemistry or physics alone is limited, but many opportunities exist to teach both subjects on the secondary-school level. Chemistry and physics teaching majors will have good preparation for teaching these subjects and will have the necessary mathematics and education background.

Requirements

1. Satisfy [general education requirements](#).
2. Satisfy the [bachelor of arts degree requirements](#).
3. Chemistry requirements: 400, Freshmen Seminar; 403-404, General Chemistry; 517, 518, Quantitative Analysis; 545, 546 or 547-548 and 549-550, Organic Chemistry; 683-684 and 685-686, Physical Chemistry I and II.
4. Physics requirements: 407, General Physics I; 408, General Physics II; 505, General Physics III; 605, Experimental Physics I. PHYS 406, Introduction to Modern Astronomy, is strongly recommended.
5. Math requirements: 425, Calculus I, and 426, Calculus II.
6. All education courses in the [teacher preparation program](#).

General Science Certification

Students majoring in animal sciences, biochemistry, biology, environmental conservation studies, environmental sciences, forestry, microbiology, plant biology, wildlife management, or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the [Department of Education](#) and see [College of Life Sciences and Agriculture/Degrees](#).

Bachelor of Science in Chemistry

This curriculum prepares students for careers requiring a thorough knowledge of chemistry and provides a strong foundation for careers in industry, professional schools (e.g., medical

schools), and for graduate study in chemistry or in interdisciplinary areas. The curriculum requires a greater depth in chemistry and physics than do the other degree programs.

Requirements

1. Satisfy general education requirements.
2. For specific course requirements, see Baccalaureate Degree Required Chemistry Courses.

» [Click to view course offerings](#)

^ [back to top](#)

Civil Engineering (CIE) ▼

» <http://www.unh.edu/civil-engineering/>

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Chairperson: Jean Benoit

Professor: Jean Benoit, M. Robin Collins, Pedro A. de Alba, David L. Gress, Nancy E. Kinner, James P. Malley Jr.

Research Professor: T. Taylor Eighmy

Associate Professor: Thomas P. Ballestero, Raymond A. Cook, Jo S. Daniel, Kevin H. Gardner, Charles H. Goodspeed, Robert M. Henry, Jennifer M. Jacobs

Assistant Professor: Erin S. Bell, Ricardo A. Medina

Research Assistant Professor: Jeffrey S. Melton, Robert M. Roseen

Affiliate Faculty: Alison W. Watts

Civil engineering involves the planning, design, and construction of public works: buildings, bridges, roads, dams, water transmission systems, water treatment systems, tunnels, and more. These facilities must provide efficient service, be cost-effective, and be compatible with the environment. Moreover, civil engineers work under a code of ethics in which their primary, overriding responsibility is to uphold the public's trust by working to plan, design, build, and restore safe and environmentally responsible public works.

Civil engineers work as private consultants and for government agencies in a wide variety of indoor and outdoor settings around the world. There is a strong and constant market for civil engineers due to the demands placed on the profession to construct, maintain, and repair the infrastructure.

As civil engineering is such a broad field, it is traditionally divided into several sub-disciplines.

At the University of New Hampshire, five are offered: civil engineering materials, environmental engineering, geotechnical engineering, structural engineering, and water resources engineering. Civil engineering majors may choose the sub-discipline in which to focus their studies during their senior year. Additionally, the College of Engineering and Physical Sciences, through the Departments of Civil Engineering and Chemical Engineering, offers a B.S. in environmental engineering (ENE), which is a major for students who choose to specifically focus their attention solely in that area. (Students who are interested in environmental engineering but who also want a broader or more traditional civil engineering focus should pursue the civil engineering major and elect environmental engineering courses in their senior year.) Students may readily transfer between the civil engineering (CIE) and ENE programs within the first two semesters. Both the B.S. in civil engineering and the B.S. in environmental engineering provide a firm base in mathematics, science, and engineering, and all majors are expected to develop excellent communication and computer skills. Graduates are prepared to enter the profession and to pursue advanced study. Because of the broad technical background attained, some graduates also successfully pursue further education in business, architecture, education, and law.

Mission

The mission of the Department of Civil Engineering is to pursue and disseminate knowledge through teaching, research, and public service. As part of its teaching mission, the department provides rigorous, yet flexible, undergraduate and graduate education for both traditional and nontraditional students through classical and creative instruction in the classroom, laboratory, and field. While preparing students for the profession, the department offers an education in civil engineering that includes working in multidisciplinary teams that critically analyze and formulate solutions to civil engineering problems and apply engineering principles that provide social, economic, and environmental benefits to the public. The department encourages in its students a lifelong desire to keep abreast of new developments in the field and teaches them the skills necessary to continue learning. As part of its research mission, the department maintains a rigorous multidisciplinary program of scholarship advancing the state of the art in civil engineering. As part of its mission in public service, the department enhances the quality of life for people, especially in New England and specifically New Hampshire, by providing expert services, advancing and transferring knowledge and technology, and serving as a resource for information.

Educational Objectives

In accordance with its University, college, and department missions, the faculty of the Department of Civil Engineering has established clear objectives for students to help them become successful professionals after graduation. To assist graduates to become practicing civil engineers, the program helps students achieve a basic competence in math, science, and

engineering principles; learn how to apply this knowledge to solve engineering problems; achieve a working knowledge in the basic civil engineering areas of structural engineering, geotechnical engineering, civil engineering materials, water resources, environmental engineering, and project engineering; and extend their knowledge in one or more of these areas. As part of this process, students learn how to critically analyze and design equipment, structures, systems, or processes to meet desired needs; and to use current, and be able to independently learn new, engineering software. Engineers also need to be effective communicators. Engineering students learn how to communicate and defend ideas in technical reports and correspondence, how to speak before a group and convey information to technical and non-technical audiences, and how to create and effectively use graphics in support of a presentation or report. Students also learn how to work effectively as good team players who are also capable of being members of multidisciplinary teams.

As part of finding engineering solutions, students learn to locate, compile, and use existing information; design and perform experiments to gather new information; critically analyze information; and draw conclusions. Due to the nature of civil engineering efforts, which involve the public, public safety, and significant financing, it is imperative that graduates become good engineering citizens. Students develop an awareness of the interaction between engineering practice and social, economic, and environmental issues; the importance of the ASCE Code of Ethics; an awareness of contemporary issues in their interaction with civil engineering practice; and the importance of broadening their education by being familiar with topics outside of the math, science, and engineering areas. Civil engineers also are professionals who often are licensed practitioners. Students are prepared to take the Fundamentals of Engineering examination (which is required for professional licensure), understand the need for lifelong learning, and actively participate in organizations such as ASCE, SWE, SWB, Tau Beta Pi, and the Order of the Engineer.

Bachelor of Science in Civil Engineering

Matriculating students should have strong aptitudes in mathematics and science along with imagination, spatial and graphic abilities, communication skills, and creativity. Students then follow a four-year program that conforms to the guidelines of, and is accredited by, the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

The first two years of the program provide the necessary technical knowledge in mathematics, chemistry, and physics, while introducing and developing civil engineering problem-solving techniques. The junior year provides courses in each of the civil engineering sub-disciplines, providing students with skills in each and allowing students to determine which they wish to pursue further. The senior year is flexible, allowing students to choose where to focus attention

by selecting from more than thirty elective courses in civil and environmental engineering.

The required curriculum includes eight writing-intensive courses, thereby not only satisfying but exceeding the University's writing requirement. (See [University Academic Requirements](#).)

Electives

Approximately one-third of the major's total credits and more than half of the senior-level courses are elected by the student. Of these, there are general education electives required by the University and other electives required by the department in order to satisfy departmental objectives and accreditation requirements.

1. The general education program is described in [University Academic Requirements](#). Courses required by the civil engineering major fulfill the Group 1 through Group 3 general education requirements. Therefore, students select electives to satisfy the Group 4 through Group 8 courses—one elective per group.
2. The civil engineering major also requires students to select one math and basic sciences elective. A list of courses that fulfill this elective is available from the department.
3. Civil engineering majors wishing to participate in exchange programs must achieve a cumulative grade point average of 3.0 or better in all MATH, PHYS, CHEM, CIE, and ENE courses taken to date at the end of each of the second and third semesters prior to their exchange semester.
4. In the senior year, students take four courses specific to civil engineering sub-disciplines, and a senior science elective. Students can use these electives to focus on a particular civil engineering area or can acquire a broader perspective by taking courses in a variety of areas. At least one of these four elective courses must qualify also as a civil engineering design elective, and no more than three courses may be taken in one sub-discipline. Lists of courses that fulfill these electives are available from the department.

Additional program policies and requirements

1. To transfer into the civil engineering major, a student must have the following:
 - a. an overall grade point average of 2.33 or greater;
 - b. an overall grade point average of 2.33 or greater for all CIE and ENE courses taken to-date;
 - c. a grade point average of 2.33 in courses taken to-date of MATH 425; PHYS 407; CHEM 405

or CHEM 403; CIE 525; and CIE 526;

d. a minimum grade of C+ in courses taken to-date of CIE 525 and CIE 526.

2. Students who are transferring into the civil engineering major may only transfer in the following:

a. a maximum of 20 credits for CIE and ENE 600- and 700-level coursework,

b. CIE and ENE 600- and 700-level courses in which the student has received a grade of C- or better.

3. To continue as a civil engineering major, a student must adhere to the following restrictions:

a. a maximum of two CIE or ENE courses may be repeated (though each of these may be repeated more than once),

b. a semester grade-point average lower than 2.0 may be earned for a maximum of two consecutive semesters,

c. a cumulative grade-point average of less than 2.0 for CIE and ENE courses may be earned for a maximum of any two semesters.

4. CIE and ENE 600- and 700-level courses are intended for CIE and ENE majors only. All others may enroll in these courses only with the permission of the instructor, but others may take no more than 20 credits of these courses.

5. To enter the required 600-level courses in the junior year, students must achieve the following:

a. the completion of CIE 525, CIE 526, MATH 425, PHYS 407, and CHEM 405 or CHEM 403,

b. an overall grade-point average of 2.0 or greater for these courses,

c. a grade of C or better in each of CIE 525 and CIE 526.

6. To graduate with a bachelor of science in civil engineering, a student must achieve the following:

a. 129 or more credits,

b. credit for the civil engineering program's major and elective courses,

c. satisfaction of the University's [general education requirements](#),

d. satisfaction of the University's [writing intensive course requirements](#),

- e. a cumulative grade-point average of 2.0 or better for all courses,
- f. a cumulative grade-point average of 2.0 or better for all CIE and ENE courses.

First Year

Abbreviation	Course Number	Title	Fall	Spring
CIE	402	Intro. to Civil Engineering	3	-
ENGL	401	First-Year Writing	4	-
TECH	564	Fundamentals of CAD	3	-
Elective (2)		general education requirement*	4	4
CIE	505	Surveying and Mapping	-	4
MATH	425	Calculus I	-	4
PHYS	407	General Physics I	-	4
Total			14	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
CIE	525	Statics	3	-
ENE	520	Environmental Pollution and Protection	4	-
ENGL	502	Technical Writing	4	-
MATH	426	Calculus II	4	-
PHYS	408	General Physics II	4	-
CHEM	405	General Chemistry	-	4
CIE	526	Strength of Materials	-	3
CIE	533	Project Engineering	-	3
MATH	527	Differential Equations with Linear Algebra	-	4
Elective (1)		general education requirement*	-	4
Total			19	18

Junior Year

Abbreviation	Course Number	Title	Fall	Spring

CIE	622	Engineering Materials	4	-
CIE	642	Fluid Mechanics	4	-
MATH	644	Statistics for Engineers and Scientists	4	-
Elective (1)		math and basic sciences**	4	-
CIE	665	Soil Mechanics	-	4
CIE	681	Classical Structural Analysis	-	3
ENE	645	Fundamental Aspects of Environmental Engineering	-	4
Elective (1)		general education requirement*	-	4
Total			16	15

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
CIE	760	Foundation Design I	4	-
CIE	774	Reinforced Concrete Design	4	-
CIE	784	Intro. to Project Planning and Design	1	-
Elective (1)		senior science**	3	-
CIE or ENE	788	Project Planning and Design	-	3
Elective (4)		civil engineering**	3	9
Elective (1)		general education requirement*	-	4
Total			15	16

*See *University Academic Requirements for general education requirements.*

** *Approved list available in the CIE office.*

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Computer Science (CS) ▼

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Affiliate Associate Professor: Sylvia Weber Russell, Roy M. Turner

Assistant Professor: Wheeler Ruml

Affiliate Assistant Professor: Michael S. Deutsch, Anthony J. Lapadula, Matthew Plumlee

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Lecturer: Mark L. Bochert, Ellen M. Hepp, Karl Shump

Computer Science

Undergraduate students may choose from one of three degree options: The B.S. in computer science, which is designed for students interested in the design and implementation of software systems; the B.S. in computer science: bioinformatics option, which is designed for students who wish to apply computer science expertise in the life sciences; and the B.S. in information technology, which focuses on the application of existing computing technologies to the information needs of organizations and individual computer users.

Bachelor of Science in Computer Science

Computer scientists are concerned with problem-solving in general, with particular emphasis on the design of computer-efficient solutions. This involves a detailed understanding of the nature of algorithms, the software implementation necessary to utilize algorithms on computers, and how algorithms can be combined in a structured manner to form highly complex systems.

The broad objectives for B.S. in Computer Science graduates are:

1. To be competent in formulating and solving computer science problems, including the development of complex software systems;
2. To understand computer science fundamentals along with supporting mathematics and science so they will be prepared for a wide range of jobs and the pursuit of advanced degrees;
3. To be able to function in the workplace with the necessary technical skills and with appropriate oral and written communication skills; and
4. To have a broad education that promotes professional advancement, lifelong personal development, and social responsibility.

The B.S. in computer science program is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

The program is designed to prepare students for employment and/or graduate study. Most

courses require heavy computer use, and the laboratories stress hands-on experience with building software systems.

Computer science majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, and computer engineering courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a CS major. In order to be able to take a CS or MATH course with prerequisites, the prerequisite course(s) must be passed with a grade of a C- or better.

If a student wishing to transfer into the computer science major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

The curriculum includes coursework in mathematics, science, and philosophy. The following is a sample schedule depicting the necessary requirements and the layout of the curriculum. Students must consult with their advisers in order to come up with the proper schedule for themselves.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
CS	400	Introduction to Computing	1	
CS	415	Introduction to Computer Science I	4	
MATH	425	Calculus I (Gen Ed 2)	4	
Gen Ed	3	(Science/Technology)*	4	
Gen Ed			4	
CS	416	Introduction to Computer Science II		4
MATH	426	Calculus II		4
ENGL	401	First-Year Writing (Gen Ed 1)		4
Gen Ed	3	(Science/Technology)*		4
		Total	17	16

* These two additional technology or science courses are required, in addition to PHYS 407 and 408. One will satisfy a general education requirement. Students can choose these two courses from the following list:

Biology:

Abbreviation	Course Number	Title
BIOL	411	Principles of Biology I
BIOL	412	Principles of Biology II
BIOL	413	Principles of Biology I (UNH Manchester Course)
BIOL	414	Principles of Biology II (UNH Manchester Course)
HMP	501	Epidemiology and Community Medicine
MICR	501	Public Health Microbiology
PBIO	412	Introduction to Botany
PBIO	421	Concepts of Plant Growth
ZOOL	412	Principles of Zoology

Physical Science:

Abbreviation	Course Number	Title
CHEM	401-402	Introduction to Chemistry
CHEM	403-404	General Chemistry
CHEM	405	General Chemistry
ESCI	405	Global Environmental Change
ESCI	409	Environmental Geology
ESCI	501	Introduction to Oceanography
NR	504	Freshwater Resources

Technology:

Abbreviation	Course Number	Title
PHIL	447	Computer Power and Human Reason

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
CS	515	Data Structures	4	
MATH	531	Mathematical Proof	4	
PHYS	407	General Physics I (Gen Ed 3P)	4	
Gen Ed			4	
CS	516	Introduction to Software Design and Development		4

MATH	532	Discrete Mathematics		4
PHYS	408	General Physics II (Gen Ed 3P)		4
Gen Ed				4
		Total	16	16

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
CS	520	Assembly Language Programming and Machine Organization	4	
CS	671	Programming Language Concepts and Features	4	
		Statistics Course*	4	
PHIL	424	Science, Technology and Society (Gen Ed 8)	4	
CS	620	Operating System Fundamentals		4
		Computer Science Theory Course **		4
ECE	543	Introduction to Digital Systems		4
CS	595	Computer Science Seminar		2
Gen Ed				4
		Total	16	18

* Statistics requirement can be fulfilled by MATH 539, Introduction to Statistical Analysis, or MATH 644, Statistics for Engineers and Scientists.

** CS Theory requirement can be fulfilled by CS 645, Introduction to Formal Specification and Verification, or CS 659, Introduction to the Theory of Computation.

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
CS	719	Object-Oriented Methodology	4	
CS		Writing Intensive Course	4	
ECE	562	Computer Organization	4	
		Liberal Arts Elective *	4	
CS	700-Level	Elective		4
CS	700-Level	Elective		4
		Liberal Arts Elective *		4

		Free Elective		1
		Total	16	13

* Liberal Arts electives can be any course within the College of Liberal Arts that does not have a math or science component.

Bachelor of Science in Computer Science: Bioinformatics Option

The bioinformatics field is an increasingly important sub-discipline in computer science. The demand for computer science graduates who can apply their knowledge in the life sciences is significant, and is expected to continue to grow. Students who choose this path are still computer science majors but have a concentration in the life sciences. The option has the same core as the B.S. program but requires appropriate coursework in chemistry, biology, biochemistry, and statistics.

Computer science: bioinformatics majors must maintain an overall grade-point average of 2.0 or better in all required computer science, mathematics, computer engineering, biology, and biochemistry courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as a computer science: bioinformatics major. In order to be able to take a CS or MATH course with prerequisites, the prerequisite course(s) must be passed with a grade of a C- or better.

If a student wishing to transfer into the computer science: bioinformatics major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in computer science. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

The B.S. in computer science: bioinformatics program is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

The broad objectives for B.S. in Computer Science: Bioinformatics graduates are:

1. To be competent in formulating and solving computer science problems, including the development of non-trivial software systems;
2. To understand computer science fundamentals along with supporting mathematics and science so they will be prepared for a wide range of jobs in the biomedical industry and the pursuit of advanced degrees in both computer science and bioinformatics;
3. To be able to function in the workplace with the necessary technical skills and with appropriate oral and written communication skills; and

4. To have a broad education that promotes professional advancement, lifelong personal development, and social responsibility.

The following is a sample schedule depicting the necessary requirements and the layout of the curriculum. Students must consult with their advisers in order to come up with the proper schedule for themselves.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
CS	400	Introduction to Computing	1	
CS	415	Introduction to Computer Science I	4	
MATH	425	Calculus I (Gen Ed 2)	4	
BIOL	411	Principles of Biology I (Gen Ed 3B)	4	
Gen Ed			4	
CS	416	Introduction to Computer Science II		4
MATH	426	Calculus II		4
BIOL	412	Principles of Biology II (Gen Ed 3B)		4
ENGL	401	First-Year Writing (Gen Ed 1)		4
		Total	17	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
CS	515	Data Structures	4	
MATH	531	Mathematical Proof	4	
CHEM	403	General Chemistry I (Gen Ed 3P)	4	
Gen Ed			4	
CS	516	Introduction to Software Design and Development		4
MATH	532	Discrete Mathematics		4
CHEM	404	General Chemistry II (Gen Ed 3P)		4
Gen Ed				4
		Total	16	16

Junior Year

	Course			

Abbreviation	Number	Title	Fall	Spring
CS	520	Assembly Language Programming and Machine Organization	4	
		Statistics Course*	4	
CS	671	Programming Language Concepts and Features	4	
PHIL	424	Science, Technology and Society (Gen Ed 8)	4	
CS	595	Computer Science Seminar	2	
CS	620	Operating System Fundamentals		4
		Computer Science Theory Course **		4
BIOL	604	Principles of Genetics		4
Gen Ed				4
		Total	18	16

* Statistics requirement can be fulfilled by MATH 539, Introduction to Statistical Analysis, or MATH 644, Statistics for Engineers and Scientists.

** CS Theory requirement can be fulfilled by CS 645, Introduction to Formal Specification and Verification, or CS 659, Introduction to the Theory of Computation.

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
CS	719	Object-Oriented Methodology	4	
BCHEM	711	Genomics and Bioinformatics	4	
	700-Level	Statistics Course*	4	
		Liberal Arts Elective	4	
CS		Writing Intensive Course **		4
CS	775	Database Systems		4
ECE	543	Introduction to Digital Systems		4
		Liberal Arts Elective		4
		Total	16	16

* This requirement can be fulfilled by the following courses: MATH 739, Applied Regression Analysis; MATH 742, Multivariate Statistical Methods; or MATH 755, Probability and Stochastic Processes with Applications.

** This course must include a project that addresses bioinformatics issues.

The Minor in Computer Science

The minor in computer science is designed for students in other majors who want to learn the fundamentals of designing and implementing computer software.

Note: All courses for the minor must be completed with a C- or higher.

Requirements:

Abbreviation	Course Number	Title
CS	415	Introduction to Computer Science I
CS	416	Introduction to Computer Science II
CS	515	Data Structures

Two additional courses chosen from:

Abbreviation	Course Number	Title
CS	516	Introduction to Software Design and Development
CS	520	Assembly Language Programming and Machine Organization
CS	620	Operating System Fundamentals
*CS	645	Introduction to Formal Specification and Verification
*CS	659	Introduction to the Theory of Computation
CS	671	Programming Language Concepts and Features
		An approved CS 700-level course

* CS 645 and 659 have mathematics prerequisites: MATH 425, MATH 426, MATH 531, and MATH 532.

The Bachelor of Science in Information Technology

Information technology is concerned primarily with the application of existing computing technologies to the information needs of organizations and individual computer users. Potential careers include network administrator, database administrator, system administrator, and Web site administrator.

IT programs aim to provide graduates with the skills and knowledge to take on appropriate

professional positions in information technology upon graduation and grow into leadership positions in the field. Specifically, within five years of graduation a student must be able to:

1. Explain and apply appropriate information technologies and employ appropriate methodologies to help an individual or organization achieve its goals and objectives;
2. Manage the information technology resources of an organization;
3. Anticipate the changing direction of information technology and evaluate and communicate the likely utility of new technologies to an organization;
4. Demonstrate professional advancement, lifelong personal development, and social responsibility.

The B.S. in information technology degree program was approved by the College of Engineering and Physical Sciences in May 2008 and the USNH Board of Trustees in fall 2008. The University will welcome its first IT class in fall 2009. Note: the B.S. in information technology degree program has not yet been accredited by the Accreditation Board for Engineering and Technology.

Information technology majors must maintain an overall grade-point average of 2.0 or better in all required information technology and computer science required courses in order to graduate. If at the end of any semester, including the first, a student's cumulative grade-point average in these courses falls below 2.0, the student may not be allowed to continue as an IT major. All required IT courses offered by the CS department at the 400-600 level must be passed with a C- or better.

If a student wishing to transfer into the information technology major has any coursework that is applicable to the major, the grades in those courses must satisfy the minimum grade requirements for the B.S. degree in Information Technology. The student must have an overall grade-point average of 2.0 or better in all courses taken at the University.

The IT major requires students to take the equivalent of 10 courses within the CS department that constitute the core coverage of the breadth of IT topics. In addition, students must choose a depth track, consisting of three courses that focus on a more specialized area within the IT field. The CS department currently offers a Web track and an Admin track. Students who choose the Web Track must take IT 604, Intermediate Web Development; CS 771, Web Programming Paradigms; and IT 704, Advanced Web Topics. Students who opt for the Admin Track must take IT 609, Network/System Administration; IT 725, Network Technology; and IT 775, Database Technology.

The IT curriculum includes a number of courses outside of the CS department. Two courses in mathematics are required: Calculus I and a statistics course. A two-semester lab science sequence is also required, as are a philosophy course (PHIL 424) and a technical writing

course (ENGL 502).

In addition, by the end of their sophomore year, each student must choose a second discipline in a particular domain outside of IT to which the student's IT skills can be applied. Second disciplines (typically five courses) have been defined by the CS department in such areas as business administration, health management and policy, and justice studies. If a student is interested in an area that is not currently defined, the option of a student-designed second discipline is also available.

The following is a sample schedule depicting the necessary requirements and the layout of the curriculum. Students must consult with their advisers in order to come up with the proper schedule for themselves.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
CS	400	Introduction to Computing	1	
MATH	418	Analysis and Applications of Functions	4	
MATH	425	Calculus I, Gen Ed		4
CS	403	Weaving the Web (Gen Ed 3)	4	
CS	415	Introduction to Computer Science I	4	
Gen Ed			4	
IT	506	Intermediate Applications Programming with Visual Basic (or CS 416 Introduction to Computer Science II)		4
IT	502	Intermediate Web Design		4
ENGL	401	First-Year Writing (Gen Ed 1)		4
		Total	17	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
MATH	439	Statistical Discovery for Everyone	4	
IT	520	Computer Architecture	4	
Gen Ed			4	
		Lab Science I & II (Gen Ed 3B or 3P)	4	4
IT	505	Database Programming		4
ENGL	502	Technical Writing		4
		Second Discipline I		4

		Total	16	16
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Junior Year

Abbreviation	Course Number	Title	Fall	Spring
		Depth Track I	4	
PHIL	424	Science, Technology and Society (Gen Ed 8)	4	
		Second Discipline II	4	
Gen Ed			4	
CS	600	Internship		1
CS	595	Computer Science Seminar		2
		Depth Track II		4
IT	666	Computer Security		4
		Second Discipline III		4
		Total	16	15

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
		Depth Track III	4	
		Second Discipline IV	4	
		Free Elective	4	
IT	705	Project Management	4	
IT	710	Senior Project		4
		Second Discipline V		4
		Free Elective		4
		Free Elective		4
		Total	16	16

Minor in Information Technology

The information technology (IT) minor is a way for students in non-technical majors to bridge the gap between a primarily non-technical education and a technical world. Graduates from a variety of fields are discovering that there is a great need to have computer competency in addition to the knowledge they gain in their major; and, the IT minor, which is tailored to grow

students' understanding of computer and information technology applications, helps prepares students for the future.

Students who minor in IT must complete a minimum of 20 credits of IT courses. All students must take IT 520, Computer Architecture, as well as an introductory programming course. The other three courses may be chosen from the list below.

Credit toward the minor will be given only for courses passed with C- or better, and a 2.0 grade-point average must be maintained in courses for the minor. Courses taken on the pass/fail basis may not be used for the minor. Students should declare their intent to earn a minor as early as possible and no later than the end of the junior year. During the final term, an application should be made to the dean of the student's major college to have the minor shown on the academic record. Students must consult with their major adviser and also the minor supervisor.

Requirements:

Abbreviation	Course Number	Title
		1.
IT	520	Computer Architecture
		2. A programming course chosen from the following list:
CS	405	Introduction to Applications Programming with Visual Basic
CS	410	Introduction to Scientific Programming
CS	503	Introduction to Web Programming
		3. Three courses from the following list (at least two of which must be at the 500/600-level):
CS	401	Computer Applications
CS	403	Weaving the Web: Creating Content for the World Wide Web
IT	502	Intermediate Web Design
IT	505	Database Programming
IT	506	Intermediate Applications Programming with Visual Basic
IT	604	Intermediate Web Development
IT	609	Network/System Administration

Earth Sciences (ESCI) ▼

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The courses offered in the Department of Earth Sciences cover the broad spectrum of geosciences, with emphases on geology, hydrology, geochemistry, and oceanography. The curriculum encompasses a group of related studies concerned with an understanding of the Earth and its environment. Study of the processes that shape the continents and oceans, drive the hydrologic cycle and ocean circulation, and affect climate change and the evolution of life is based on a foundation of basic mathematics, physics, and chemistry.

The need for people trained in the Earth and environmental sciences has been increasing in response to society's growing concern with sound environmental and resource management. Issues of particular concern include the impact of global climate change; the management of water resources; the development of energy and mineral resources; the disposal of waste on land and in the atmosphere and oceans; and the assessment of environmental hazards. In addition, the demand for well-trained secondary school teachers of Earth sciences has been steadily increasing.

The Department of Earth Sciences offers five majors: B.S. geology, B.S. environmental sciences (interdisciplinary with the College of Life Sciences and Agriculture), B.A. Earth sciences, B.A. Earth sciences/oceanography, and B.A. Earth science teaching. These programs prepare students for advanced study in the geosciences; for entry-level professional employment in public or private institutions concerned with environmental and resource

management, including consulting firms, government agencies, energy- and resource-extraction firms, utilities, and nonprofit organizations; and for secondary-school teaching of Earth sciences.

The Department of Earth Sciences also offers a minor in geology, as well as an interdisciplinary minor in oceanography.

Descriptions and requirements for the majors and minors are arranged alphabetically.

Bachelor of Arts in Earth Sciences

The bachelor of arts in Earth sciences is offered through the Department of Earth Sciences. This program provides students an opportunity to obtain a broad education and a general background in the Earth sciences with a greater degree of freedom in choosing electives than in the bachelor of science programs. By careful choice of electives, students can prepare for graduate school, business, or industry.

Requirements

1. Satisfy the [general education requirements](#).
2. Satisfy the [bachelor of arts degree requirements](#).
3. Complete a minimum of eight courses in the department (with a C- or better), including ESCI 401, The Dynamic Earth, or ESCI 409, Geology and the Environment; ESCI 402, Earth History; ESCI 512, Principles of Mineralogy; and five upper-level courses, two of which must be 700 or above.
4. Math requirements: 425, Calculus I, and 426, Calculus II.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

Bachelor of Arts in Earth Sciences, Oceanography Option

The bachelor of arts in Earth sciences, oceanography option, is offered by the Department of Earth Sciences. This program provides students an opportunity to obtain a broad education and a general background in the Earth sciences, as well as the flexibility to choose electives in the area of oceanography. A clear, comprehensive understanding of the ocean environment will prepare students for graduate school or for employment opportunities available on our coasts in ocean-related fields such as aquaculture, fishing, tourism, environmental protection, shipping, construction, government regulation, and education.

Requirements

1. Satisfy the [general education requirements](#).

2. Satisfy the [bachelor of arts degree requirements](#).
3. Complete a minimum of eight courses in the department (with a C- or better) including ESCI 401, The Dynamic Earth, or ESCI 409, Geology and the Environment; ESCI 402, Earth History or ZOOL 503, Introduction to Marine Biology; ESCI 501, Introduction to Oceanography; ESCI 512, Principles of Mineralogy; and four upper-level ocean related courses, two of which must be 700 or above. Typically these would be chosen from ESCI 658, Earth, Ocean, and Atmosphere Dynamics; ESCI 750, Biological Oceanography; ESCI 752, Chemical Oceanography; ESCI 758, Physical Oceanography; and ESCI 759, Geological Oceanography.
4. Math requirements: 425, Calculus I, and 426, Calculus II.

It is strongly advised that students complete, as early as possible, a year each of college chemistry and physics.

Oceanography Minor

See the [Special University Programs](#), Interdisciplinary Programs, and [Marine Sciences](#) sections of the catalog.

Bachelor of Arts in Earth Science Teaching

The bachelor of arts in Earth science teaching program is offered by the Department of Earth Sciences in coordination with the Department of Education. The program is specifically designed to prepare students to teach Earth sciences in secondary school. Upon graduation from this program, students are prepared to complete a masters degree in Education with an additional year of graduate study, which includes a year-long internship (EDUC 900/901). After completing this typically five-year program, students receive full teacher certification, which is recognized in most states.

Requirements

1. Satisfy the [general education requirements](#).
2. Satisfy the [bachelor of arts degree requirements](#).
3. Complete the following: ESCI 401, The Dynamic Earth, or ESCI 409, Geology and the Environment; ESCI 402, Earth History; ESCI 501, Introduction to Oceanography; GEOG 473, The Weather; CHEM 403-404, General Chemistry; PHYS 401-402, Introduction to Physics I and II, PHYS 406, Introduction to Modern Astronomy; plus 12 approved elective credits from intermediate and/or advanced Earth sciences courses.
4. Math requirements: 425, Calculus I, and 426, Calculus II.
5. Satisfy the [secondary-school teacher education program](#).

General Science Certification

Students majoring in animal sciences, biochemistry, biology, Earth sciences, environmental

conservation studies, environmental sciences, forestry, microbiology, plant biology, wildlife management, or zoology may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the [Department of Education](#).

Bachelor of Science in Geology

The bachelor of science in geology is offered through the Department of Earth Sciences. The program represents a strong concentration in the Earth sciences and is especially well suited for students who plan to continue their studies in graduate school. Beyond a central core of courses, there is sufficient flexibility in course selection so that students may, in consultation with their academic advisers, orient the program toward a particular facet of the Earth sciences (e.g., mineralogy-petrology, oceanography, hydrogeology, geophysics-structural geology, geomorphology-glacial geology, geochemistry, paleontology-stratigraphy). Students are encouraged to attend an off-campus field camp, for which scholarship funds may be available.

Requirements

1. Satisfy the [general education requirements](#) and the [bachelor of science degree requirements](#).
2. Satisfactorily complete MATH 425 and 426, CHEM 403-404 (or CHEM 405), PHYS 407-408, and PHYS 505 or ESCI 658. Some of these courses may also satisfy Group 2 and part of Group 3 of the general education requirements.
3. Complete a minimum of 12 courses in Earth sciences, which should include ESCI 401, The Dynamic Earth, or ESCI 409, Geology and the Environment; ESCI 402, Earth History; ESCI 501, Introduction to Oceanography; ESCI 512, Principles of Mineralogy; ESCI 614, Optical Mineralogy and Petrography; ESCI 530, Geological Field Methods; ESCI 561, Landscape Evolution; ESCI 631, Structural Geology; ESCI 652, Paleontology; and three approved earth sciences 700-level electives.
4. Complete four approved science/math electives. The following should be considered: one additional 700-level course in the Earth sciences; additional courses in mathematics, chemistry, and physics; courses in computer science, engineering, and the biological sciences; and an off-campus field camp.

Geology Minor

Any University student who is interested in Earth sciences may minor in geology. The minor consists of at least 18 semester hours, typically from five ESCI courses, each with a grade of C- or better, while maintaining a cumulative grade-point average of 2.0. A maximum of eight credits may be used for both major and minor credit. Courses include both introductory and

more advanced courses. Specific course requirements are flexible to accommodate the student's interest in different facets of the geosciences. Interested students should see the Earth Sciences' undergraduate coordinator to complete an Intent to Minor form no later than their junior year.

Environmental Sciences

www.unh.edu/envsci/

The College of Engineering and Physical Sciences and the College of Life Science and Agriculture jointly offer a Bachelor of Science Degree in Environmental Sciences.

Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape the natural environment. Students graduating with a degree in Environmental Sciences will have an understanding of these interacting processes, the ability to effectively communicate with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of geographic information systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 12 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management. Employment opportunities include: environmental consulting firms, educational facilities (e.g., science centers), environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency), government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

Requirements

In addition to [general education requirements](#), all students will take Introduction to Environmental Science (NR 403) and Professional Perspectives in Natural Resources (NR 400), plus one other elective introductory environmental science course. Foundation courses include two semesters of chemistry (CHEM 403, 404) and calculus (MATH 425, 426), one semester of geology (ESCI 401, 402, or 409), one semester of statistics (MATH 644 or BIOL 528), one semester of physics (PHYS 407) and one approved biology course. Core courses include Techniques in Environmental Sciences (ESCI 534), Introduction to GIS (NR 658), Fate

and Transport in the Environment (ESCI 654), Natural Resource and Environmental Policy (NR 602), and a capstone course sequence NR 791 and 792).

Students must complete an additional eight courses in one of the following options:

Hydrology

PHYS 408, General Physics II

ESCI 561, Landscape Evolution

NR 501, Introduction to Soil Sciences, or ESCI 512, Principles of Mineralogy

NR 604, Watershed Hydrology

ESCI 705, Principles of Hydrology

ESCI 710, Groundwater Hydrology

Two approved electives

Soil and Watershed Management

PHYS 408, General Physics II

NR 501, Introduction to Soil Sciences

NR 604, Watershed Hydrology

NR 703, Watershed Water Quality Management

NR 706, Soil Ecology

Three approved electives

Ecosystems

NR 527, Forest Ecology, or BIOL 541, General Ecology

NR 730, Terrestrial Ecosystems

NR 765, Community Ecology

NR 751, Aquatic Ecosystems

Four approved electives

For a list of approved elective courses and for further information about the major, contact the program coordinator, John D. Aber, Department of Natural Resources and the Environment, 102 Nesmith Hall, (603) 862-3045; john.aber@unh.edu.

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^ [back to top](#)

Electrical and Computer Engineering (ECE) ▼

» <http://www.ece.unh.edu/>

» [Click to view course offerings](#)

Professor: Kent A. Chamberlin, Christian P. De Moustier, L. Gordon Kraft, John R. LaCourse, W. Thomas Miller III, Andrzej Rucinski

Affiliate Professor: Stuart M. Selikowitz

Associate Professor: Michael J. Carter, Allen D. Drake, Andrew L. Kun, Richard A. Messner

Research Associate Professor: Brian R. Calder

Affiliate Associate Professor: Charles H. Bianchi, Thaddeus P. Kochanski, Barbara Kraft, Paul W. Latham II, William H. Lenharth, Timothy Paek, Henk A.E. Spaanenburg

Assistant Professor: Nicholas J. Kirsch, Kuan Zhou

Instructor: Francis C. Hludik Jr.

Lecturer: Wayne J. Smith

The Department of Electrical and Computer Engineering offers a B.S. in electrical engineering and a B.S. in computer engineering. Both degree programs are accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (401) 347-7700.

ECE Department Mission

The mission of the department is to foster and advance knowledge in electrical and computer engineering.

The mission involves:

- teaching courses in electrical and computer engineering and related fields at the bachelor's, master's, and doctoral levels;
- advancing knowledge through research and scholarship;
- serving the state and nation by making the department's intellectual resources available to industry and government agencies. The undergraduate EE and CE programs shall provide a firm foundation in electrical and computer engineering theory and practice, with a mix of laboratory and design experiences. The programs also shall foster teamwork and project management skills.

The graduate ECE program shall lead to the degrees of master of science in electrical engineering and the doctor of philosophy in electrical engineering. Research and scholarship are core components of the department's mission and they directly impact undergraduate and graduate education. Success in obtaining funds to procure equipment and support research efforts is therefore an essential objective for the department.

The department recognizes the need to conduct periodic reviews and adjustments to meet the current and projected needs of the state and nation according to its mission objectives. The current mission was approved by the ECE faculty in March 2001, approved by the ECE Student

Advisory Board in October 2001, and ratified by the ECE Industrial Advisory Board in April 2002. The mission was reaffirmed by the ECE Industrial Advisory Board in November 22, 2004.

Electrical Engineering and Computer Engineering Program Educational Objectives

The Department of Electrical and Computer Engineering has adopted a set of program educational objectives that consists of statements describing the expected accomplishments of graduates during the first several years following graduation from either program:

- graduates will function at a technically outstanding level in formulating and solving problems in their respective program area;
- graduates will produce competent written and oral reports, and provide project management and leadership;
- through a thorough grounding in engineering fundamentals, graduates will be prepared for a successful engineering career amid future technological changes;
- through a well-rounded education, graduates will be able to respond to changing career paths, to maintain an interest in lifelong learning, and to advance professionally;
- graduates will be creative when dealing with contemporary issues facing society in local, global, historical, social, economic, and political contexts in relation to electrical and computer engineering;
- graduates will be able to design, prototype, and test electrical and computer engineering designs using state-of-the-art test equipment in a laboratory environment.

The electrical and computer engineering educational program objectives were approved by the ECE faculty in March 2001, approved by the ECE Student Advisory Board in November 2001, and ratified by the ECE Industrial Advisory Board in March 2002. The program educational objectives were reaffirmed by the ECE Industrial Advisory Board on November 22, 2004.

Electrical Engineering and Computer Engineering Program Educational Outcomes

The Department of Electrical and Computer Engineering has adopted a set of program educational outcomes that consists of statements describing what students are expected to know and are able to do by the time of graduation, the achievement of which indicates that the student is equipped to achieve the program objectives. The current electrical engineering program educational outcomes and computer engineering program educational outcomes are:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as to analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs;
- an ability to function on multidisciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an ability to communicate effectively;
- an understanding of professional and ethical responsibility;
- the broad education necessary to understand the impact of engineering solutions in a global

and societal context;

- a recognition of the need for, and ability to engage in, lifelong learning;
- a knowledge of contemporary issues;
- an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

Electrical and computer program educational outcomes were approved by the ECE faculty in March 2001, approved by the ECE Student Advisory Board in October 2001, and ratified by the ECE Industrial Advisory Board in March 2002. The program educational outcomes were reaffirmed by the ECE Industrial Advisory Board on November 22, 2004.

Students contemplating a decision between the electrical engineering and computer engineering degree programs should consider both the similarities and differences of the two programs. The two curricula require the same foundational courses in mathematics, physics, analog and digital electronic circuits, and a capstone senior design project. The computer engineering degree program requires additional fluency in software development and advanced computer system and hardware design. The electrical engineering degree program requires advanced study in analog and mixed-signal electronic circuit and system analysis and design. The University's general education requirements are identical for both degree programs.

Electrical Engineering Program

Electrical engineers design, develop, and produce the electrical and electronic systems upon which modern society has come to depend: basic infrastructure, such as the electric power grid and fiber optic communication lines; public conveniences, such as mag lev transporters and LED signs; consumer products, such as iPods and MP3 players; personal communication devices, such as cell phones and BlackBerry® devices; military systems, such as rail guns and laser weapons; instruments that can image the ocean floor or analyze the Earth's atmosphere from satellites; and medical diagnostic machines like CAT and MRI scanners. Almost every facet of modern life is touched by the work of electrical engineers.

At UNH, the cornerstone of the electrical engineering program is the involvement of students in the solution of real-world problems. Students electing this major gain knowledge of advanced electronic circuit and system design through the use of computer-aided design tools, hardware circuit prototyping, and hands-on laboratory testing.

In addition to general University requirements, the department has a number of grade-point average and credit requirements.

1. For an electrical engineering major to enter the junior year and take any of the first-term junior courses (ECE 544, 617, 633, or 651), he or she must have taken, and achieved a

cumulative grade-point average of 2.1 in all of the following freshman and sophomore courses: MATH 425, 426, 527; PHYS 407, 408; and ECE 541, 543, 548, and 562.

2. Any electrical engineering major whose cumulative grade-point average in ECE courses is less than 2.0 during any three semesters will not be allowed to continue as an electrical engineering major.

3. Electrical engineering majors must achieve a 2.0 grade-point average in ECE courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department's undergraduate committee. Mindful of these rules, students, with their advisers' assistance, should plan their programs based on the distribution of courses in the following chart for a total of at least 133 credits.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	401	Perspectives in Electrical & Computer Engineering	4	-
MATH	425	Calculus I	4	-
CS	410	Introduction to Scientific Programming**	4	-
CHEM	405	General Chemistry	4	-
PHYS	407	Physics I	-	4
ENGL	401	First-Year Writing	-	4
MATH	426	Calculus II	-	4
		General Education Elective**	-	4
Total			16	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	541	Electrical Circuits	4	-
ECE	543	Introduction to Digital Systems	4	-
PHYS	408	Physics II	4	-
MATH	527	Differential Equations with Linear Algebra	4	-
ECE	548	Electronic Design I	-	4

ECE	562	Computer Organization	-	4
ME	523	Introduction to Statics and Dynamics	-	3
		General Education Elective	-	4
Total			16	15

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	544	Engineering Analysis	4	-
ECE	617	Junior Lab I	4	-
ECE	633	Signals and Systems I	3	-
ECE	651	Electronic Design II	4	-
		General Education Elective	4	-
ECE	603	Electromagnetic Fields & Waves	-	4
ECE	618	Junior Laboratory II	-	4
ECE	634	Signals and Systems II	-	3
ECE	647	Random Processes and Signals in Engineering	-	3
ECE	668	Fundamentals of Computer Engineering	-	4
ECE	694	Engineering Professional Principles		1
Total			19	19

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
		Professional Elective*	4	-
		Professional Elective*	4	-
		General Education Elective	4	-
		General Education Elective	4	-
ECE	791	Senior Project I	2	-
		Professional Elective*	-	4
		Professional Elective*	-	4
		General Education Elective	-	4
ECE	792	Senior Project II	-	2
Total			18	14

*Professional electives normally consist of 700-level ECE courses. Each course must carry at least three credits, and no more than one can be an independent study, special topics, or a project course. An alternative is a student-designed plan approved by the ECE undergraduate committee.

**Students who wish to preserve the option of transferring to the computer engineering major without incurring a delay in graduation should consult with their academic adviser before electing these courses. It is recommended that such students take CS 415, Introduction to Computer Science I, in the fall semester and CS 416, Introduction to Computer Science II, in the spring semester in place of the listed courses.

Computer Engineering Program

Computers have become embedded in virtually every engineering system. Computer engineering, traditionally a subset of electrical engineering, is a rapidly growing field that emphasizes the design, interfacing, hardware/software tradeoffs, and real-time applications of computers. Students who elect this major will gain a knowledge of both hardware and software concepts, and will learn to design, build, and test systems containing digital computers.

In addition to general University requirements, the department has a number of grade-point average and credit requirements.

1. For a computer engineering major to enter the junior year and take any of the first-term junior courses (ECE 541, 544, 633), he or she must have taken, and achieved a cumulative grade-point average of 2.1 in, all of the following freshman and sophomore courses: MATH 425, 426, 527; PHYS 407, 408; CS 415, 416, 515, 516; and ECE 543, 562, and 583.
2. Any computer engineering major whose cumulative grade-point average in ECE and CS courses is less than 2.0 during any three semesters will not be allowed to continue as a computer engineering major.
3. Computer engineering majors must achieve a 2.0 grade-point average in ECE courses as a requirement for graduation.

To make an exception to any of these departmental requirements based on extenuating circumstances, students must petition the department's undergraduate committee. Mindful of these rules, students, with their advisers' assistance, should plan their programs based on the distribution of courses in the chart below for a total of at least 131 credits.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	401	Perspectives in Electrical & Computer Engineering	4	-
MATH	425	Calculus I	4	-
CS	415	Intro to Computer Science I	4	-
		General Education Elective	4	-
ECE	543	Intro to Digital Systems	-	4
MATH	426	Calculus II	-	4
CS	416	Intro to Computer Science II	-	4
ENGL	401	First-Year Writing	-	4
Total			16	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	562	Computer Organization	4	-
PHYS	407	Physics I	4	-
MATH	527	Differential Equations with Linear Algebra	4	-
CS	515	Data Structures	4	-
ECE	583	Design with Programmable Logic	-	4
PHYS	408	Physics II	-	4
CS	516	Software Design & Development	-	4
		General Education Elective	-	4
Total			16	16

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
ECE	541	Electrical Circuits	4	-
ECE	544	Engineering Analysis	4	-
ECE	633	Signals and Systems I	3	-
		General Education Elective	4	-
ECE	548	Electronic Design I	-	4

ECE	603	Electromagnetic Fields and Waves	-	4
ECE	647	Random Processes & Signals in Engineering	-	3
ECE	649	Embedded Microcomputer Based Design	-	4
ECE	694	Engineering Professional Principles		1
Total			15	16

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
		Professional Elective*	4	-
ECE	734	Network Data Communications		4
ECE	714	Intro to Digital Signal Processing	4	-
		General Education Elective	4	-
ECE	791	Senior Project I	2	-
		Professional Elective*	-	4
		Professional Elective*	4	-
		General Education Elective	-	4
ECE	792	Senior Project II	-	2
		General Education Elective	-	4
Total			18	18

* Three professional electives must be selected from the following categories of courses:

At least one from: ECE 711, ECE 715, ECE 717

No more than one from: ADMIN 640, DS 773, DS 774

Any of these: ECE 634, ECE 651, ECE 7XX, CS 620, CS 645, CS 659, CS 671, CS 7XX

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^ [back to top](#)

Engineering Technology (ET) ▾

Environmental Engineering (ENE)

» <http://www.unh.edu/environmental-engineering/>

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Professor: Dale P. Barkey, Russell T. Carr, M. Robin Collins, Ihab H. Farag, Virendra K. Mathur, Palligarnai T. Vasudevan

Associate Professor: Nivedita R. Gupta

Research Assistant Professor: Jeffrey S. Melton

The College of Engineering and Physical Sciences offers a bachelor of science degree in environmental engineering (ENE) and an interdisciplinary minor in environmental engineering.

The bachelor of science degree in environmental engineering is accredited by the engineering accreditation commission of **ABET**, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Mission

The environmental engineering program offers an undergraduate degree in environmental engineering that prepares students for productive careers in the public and private sectors and for graduate studies. The program emphasizes fundamental principles in environmental engineering and design, built upon a strong base of chemistry, physics, mathematics, and engineering science. The program prepares students to work in multidisciplinary teams that analyze, formulate, and communicate sustainable solutions to complex environmental problems. The importance of developing sustainable solutions that provide economic, social, and environmental benefits to society is emphasized. The program instills in its students an appreciation for the responsibilities engineers have to society and teaches them the skills necessary to continue learning and improving their professional expertise throughout their careers.

The ENE degree program provides an opportunity for students to specialize in industrial or municipal processes. The curriculum prepares students to plan and design systems to minimize the impact of human activity on the environment and protect human health.

Educational Objectives

ENE program graduates will have the skills, experience, and knowledge to pursue successful careers as environmental engineers. They also will have demonstrated the ability to identify information needs; locate information resources and/or design laboratory or field experiments to attain required information; and evaluate and synthesize data with sound engineering principles, methodologies, and the latest technology into creative, sustainable, safe, and

economical engineering solutions to environmental engineering problems. The solutions they develop will minimize the impact of human activities on the environment and protect human health. Program graduates will have a foundation for advanced studies in environmental engineering and oral and written communication skills that will enable them to clearly explain engineering options and recommend solutions to stakeholders. ENE program graduates will have demonstrated in-depth knowledge within environmental engineering and an awareness of potential social, economic, political, and environmental impacts of engineering practices. They will have an appreciation of the contribution of environmental engineers to the benefit of society and the responsibilities of a professional environmental engineer. They will work as part of multidisciplinary teams to arrive at solutions to environmental engineering problems. ENE program graduates will be prepared to obtain professional engineering licensure; have the capacity to continue learning and improving their professional expertise and skills by participating in professional associations, conferences, workshops and courses; and understand the importance of continued professional development.

At the end of the sophomore year, students are required to have a minimum overall grade-point average of 2.0 and a grade-point average of 2.0 in all mathematics, physics, chemistry, and engineering courses to be permitted to enroll in junior-level courses. To qualify for graduation, an ENE major must: have satisfied the previously specified course requirements, have satisfied the University's general education requirements, have a minimum cumulative grade-point average of 2.0, and have a minimum grade-point average of 2.0 in engineering courses.

Bachelor of Science in Environmental Engineering-Industrial Processes (IP) Emphasis

The industrial processes (IP) emphasis of environmental engineering is a process-based program that draws on the principles of chemistry, physics, mathematics, and engineering sciences. Due to the complex nature of many aspects of environmental pollution, a broad understanding of the fundamentals of engineering and sciences forms the most desirable preparation for a career in the environmental field. The program is designed to provide training not only for end-of-pipe pollution control technologies, but also for expertise in process engineering and process design, essential for achieving the objectives of pollution curtailment and prevention. Such training is especially valuable in resolving industrial pollution problems. Career opportunities for environmental engineers with this background are found in industry, research institutes, government agencies, teaching, and consulting practice. Students may also enter graduate study at the M.S. or Ph.D. levels.

Engineering design is a critical aspect of the IP curriculum. In order to meet the objective of

producing creative, problem-solving engineers, design concepts are introduced early in the curriculum and design experience is integrated into every engineering course. Students learn to seek optimal solutions to open-ended problems and function in design-based team projects. Design ability is finally demonstrated at the end of the capstone course (ENE 708), when self-directed teams develop a comprehensive design report for a full-scale engineering process based on a national process design competition problem.

Since 1993, the program faculty has administered a pollution prevention internship program with industries in New Hampshire, Maine, and Massachusetts, initially funded by U.S. EPA and NHDES. In the past 12 years, the program has served more than 40 facilities. Each year about 12 students have enrolled in the pollution prevention internship program, which provides hands-on industrial employment for 10 weeks during the summer assisting industry with projects in process modification, material substitution, chemical re-use, risk assessment, safety, and economic analysis. The program faculty also assisted NHDES in setting up instrumentation in the Seacoast region of New Hampshire to monitor the precursor of ozone formation.

The B.S. program requires a minimum of 132 credits for graduation and can be completed in four years. There are nine electives in the curriculum: six for the fulfillment of the University's general education requirements and the remaining three for technical electives to be chosen from the specified elective course list. Due to the substantial overlap in course requirements for the environmental engineering IP and chemical engineering majors, students will be able to transfer between these two programs during the first three semesters without losing any course credits toward graduation.

Suggested Technical Electives

Abbreviation	Course Number	Title	Credits
CHE	602	Heat Transfer and Unit Operations	3
CHE	707	Chemical Engineering Kinetics	3
CHE	744	Corrosion	4
ENE	739	Industrial Wastewater Treatment	3
ENE	746	Bioenvironmental Engineering Design	4
ENE	747	Introduction to Marine Pollution	3
CIE	766	Introduction to Geo-Environmental Engineering	3
ESCI	409	Geology and the Environment	4
ESCI	561	Landscape Evolution	4
ESCI	705	Principles of Hydrology	4

ESCI	715	Global Atmospheric Chemistry	3
MICRO	503	General Microbiology	5

First Year

Abbreviation	Course Number	Title	Fall	Spring
CHEM	405	General Chemistry	4	-
MATH	425-426	Calculus I & II	4	4
PHYS	407	General Physics I	-	4
ENGL	401	First-Year Writing	4	-
ENE	400	Environmental Engineering Lectures I	1	-
ENE	401	Environmental Engineering Lectures II	-	1
General Education Electives			-	8
MICR	501	Microbes in Human Disease	4	-
Total			17	17

Second Year

Abbreviation	Course Number	Title	Fall	Spring
CHE	501-502	Introduction to Chemical Engineering I & II	3	3
CHEM	683-684	Physical Chemistry I & II	3	3
CHEM	685	Physical Chemistry Lab I	2	-
MATH	527	Differential Equations	4	-
PHYS	408	General Physics II	4	-
CS	410	Introduction to Scientific Programming	-	4
General Education Electives			-	8
Total			16	18

Third Year

Abbreviation	Course Number	Title	Fall	Spring

CHE	601	Fluid Mechanics and Unit Operations	3	-
CHE	604	Chemical Engineering Thermodynamics	-	4
ENE	612	Unit Operations Lab II	-	3
CHEM	651-652	Organic Chemistry I & II	3	3
CHEM	653	Organic Chemistry Lab I	2	-
ENE	742	Solid and Hazardous Waste Engineering	3	-
MATH	644	Statistics for Engineers & Scientists	4	-
General Education and Technical Electives			-	7-8
Total			15	17-18

Fourth Year

Abbreviation	Course Number	Title	Fall	Spring
CHE	703	Mass Transfer and Stagewise Operations	3	-
ENE	708	Industrial Process Design	-	4
ENE	709	Fundamentals of Air Pollution and Control	4	-
ENE	713	Unit Operations Lab II	3	-
ENE	752	Process Dynamics and Control	-	4
ENE	772	Physicochemical Processes for Water/Air Quality	-	4
ESCI	710	Groundwater Hydrology	-	4
Technical Electives			6-8	-
Total			16-18	16

Bachelor of Science in Environmental Engineering-Municipal Processes (MP) Emphasis

Environmental engineers graduating from the municipal processes (MP) emphasis will plan, design, and construct public and private facilities to minimize the impact of human activity on the environment and to protect human health. For example, environmental engineers with a municipal processes perspective design and build drinking water treatment systems, municipal

and industrial wastewater treatment plants, solid waste management facilities, contaminated ground water remediation systems, and hazardous waste remediation facilities. These facilities must meet regulatory requirements, be cost-effective to build and maintain, be safe to operate, and have minimal environmental impact.

In ENE 400 and 401, students are introduced to the full spectrum of environmental engineering projects that they will subsequently explore in design teams during their degree program. As part of these experiences, students visit and tour field sites, and interact with engineers who have been involved in the design and/or construction of the projects. Design is integrated throughout the curriculum, and particularly emphasized in junior- and senior-level courses. As part of these projects, students analyze treatment alternatives, recommend a system that meets regulatory operational needs, and prepare an implementation schedule and project budget. Detailed design projects are performed in ENE 744 and 746. ENE 788 serves as a capstone design experience where students work on a multi-interdisciplinary environmental engineering project as part of the U.S. Department of Energy's international WERC competition held in New Mexico every April, and apply skills learned in other courses while working with real-world clients.

The following schedule is a sample of a planned program for environmental engineering students completing the major within the municipal processes emphasis.

First Year

Abbreviation	Course Number	Title	Fall	Spring
ENE	400, 401	Environmental Engineering Lectures I, II	1	1
ENGL	401	First-Year Writing	4	-
MATH	425, 426	Calculus I, II	4	4
General Education Electives*			4	4
CHEM	405	General Chemistry	4	-
PHYS	407	General Physics I	-	4
ENGL	502	Technical Writing		4
Total			17	17

Second Year

Abbreviation	Course Number	Title	Fall	Spring

ENE	520	Environmental Pollution and Protection	4	-
ENE	521	Environmental Engineering Seminar	-	1
CIE	525	Statics	3	-
MATH	527	Differential Equations with Linear Algebra	4	-
MATH	644	Statistics for Engineers and Scientists	-	4
CHEM	545	Organic Chemistry Lecture	3	-
CHEM	546	Organic Chemistry Laboratory	2	-
CIE	533	Project Engineering	-	3
TECH	564	Fundamentals of CAD	-	3
General Education Elective*			-	4
Total			16	15

Third Year

Abbreviation	Course Number	Title	Fall	Spring
CIE	642	Fluid Mechanics	4	-
Technical Elective**			4	-
ENE	645	Fundamental Aspects of Environmental Engineering	-	4
ENE	756	Environmental Engineering and Microbiology	-	4
ENE	742	Solid and Hazardous Waste Engineering	3	-
Engineering Lab Elective**			-	4
Hydraulics Elective**			-	3-4
General Education Elective*			4	-
Total			15	15/16

Summer

Title	Credits
Environ Engineering Experience† (ENE 696 or 697)	1-2

Fourth Year

Abbreviation	Course Number	Title	Fall	Spring
ENE	746	Bioenvironmental Engineering Design	4	-
General Education Elective*			4	-
Environmental Engineering Elective**			3-4	6-8
ENE	744	Physicochemical Treatment Design	-	4
ENE	788	Project Planning and Design	-	3
ESCI	710	Groundwater Hydrology	-	4
ENE	784	Intro to Project Planning & Design	1	-
ENE	749	Water Chemistry	4	-
Total			16/17	17/19

*See general education requirements.

**Approved lists of technical, hydraulics, engineering laboratory, and ENE design and non-design electives are available from the ENE undergraduate coordinator. Students must take a minimum of three 700-level ENE electives totaling at least 10 credits. One ENE elective course must be from the design category.

†During one summer, majors who have a job at an approved level in the environmental engineering field performing an approved internship in environmental engineering or conducting a research project under the supervision of a faculty member are able to register for ENE 696 or 697. A student may receive a one-credit field experience or up to two credits for an environmental engineering internship. The internship could be used as an environmental engineering elective, but this would require approval of the faculty.

The municipal processes emphasis of the ENE program requires a minimum of 128 total credits for graduation.

Environmental Engineering Minor

The environmental engineering minor is intended primarily for students in engineering and physical sciences, who are not in the chemical, civil, or environmental engineering degree programs. Students contemplating such a minor should plan on a strong background in the sciences and mathematics (including differential equations).

The minor provides a comprehensive introduction to major areas of interest in environmental protection—namely, air pollution and water pollution—through the three required courses. Further breadth in environmental engineering or depth in specific areas can be attained through the choice of appropriate elective courses.

The minor requires a minimum of five courses, as follows: 1) three required courses: ENE 645, Fundamental Aspects of Environmental Engineering; ENE 709, Fundamentals of Air Pollution and Its Control; and ENE 772, Physicochemical Processes for Water and Air Quality Control, or ENE 743, Environmental Sampling and Analysis; 2) a minimum of two elective ENE courses.

Choice of elective courses should be made in consultation with the minor area adviser, James P. Malley, civil engineering, or Dale P. Barkey, chemical engineering. Students normally start this program in the junior year and should declare their intention to enter the program as early as possible during the sophomore year. During the final semester, students must apply to the dean to have the minor appear on the transcript.

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^ [back to top](#)

Information Technology (IT) ▼

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International Affairs (dual major) ▼

For program description, see [Special University Programs](#).

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Materials Science (MS) ▼

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Professor: Todd S. Gross, James E. Krzanowski

Associate Professor: Carmela C. Amato-Wierda, Brad Lee Kinsey, Igor I. Tsukrov

Research Associate Professor: Yvon G. Durant, Weihua (Marshall) Ming

Mathematics and Statistics (MATH) ▾

» <http://www.math.unh.edu>

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Professor: Liming Ge, Karen J. Graham, Eric L. Grinberg, Donald W. Hadwin, Rita A.

Hibschweiler, A. Robb Jacoby, Ernst Linder, Dmitri A. Nikshych, Samuel D. Shore, Kevin M. Short, Marianna A. Shubov

Associate Professor: Maria Bastera, David V. Feldman, Edward K. Hinson, Linyuan Li, Sharon M. McCrone

Assistant Professor: Timothy P. Fukawa-Connelly, Mark Lyon, Junhao Shen

Instructor: Philip J. Ramsey

Lecturer: Adam Boucher, Mehmet Orhon, Neil Portnoy, Yitang Zhang

The Department of Mathematics and Statistics offers a variety of programs. These programs provide flexibility through elective choices and are designed to maximize educational and employment opportunities. Each student must enroll in one specific program; however, changes between programs usually can be accommodated.

The first two years of all programs are similar. In the first year, students are expected to take Calculus I (MATH 425) and Calculus II (MATH 426) as well as an introductory scientific programming course (CS 410). A sophomore typically takes follow-up calculus courses in differential equations (MATH 527) and multidimensional calculus (MATH 528), an introductory statistics course (MATH 539), and a course in mathematical proof (MATH 531).

In addition to its degree programs, the department has an active interest in the actuarial profession and is an examination center for the Society of Actuaries. Those interested in actuarial science should seek the advice of the coordinator of the actuarial program in the department.

For more information about the department's undergraduate programs, visit www.math.unh.edu.

Standards for Graduation

To be certified for graduation with a degree from the Department of Mathematics and Statistics, a student must complete all courses used to satisfy the requirements for the major program

with a grade of C- or better and have an overall grade-point average of at least 2.0 in these courses.

Bachelor of Arts, Mathematics Major

This program may offer a broader liberal arts program than the bachelor of science degree programs. By a careful selection of electives, students can shape this major into a preparation for graduate school, business, or industry.

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527*, Differential Equations with Linear Algebra

MATH 528*, Multidimensional Calculus

MATH 531, Mathematical Proof, or MATH 545, Introduction to Linear Algebra and Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 761, Abstract Algebra

MATH 762, Linear Algebra

MATH 767, One-Dimensional Real Analysis

Two approved MATH electives chosen in consultation with the academic adviser

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

Foreign language requirement

Foreign language requirement as defined by the University for the B.A. degree

Bachelor of Science in Mathematics

This program offers the strongest concentration in mathematics, requiring courses that are intended to prepare the student for graduate work in mathematics. Through a judicious choice of electives, students may design stronger pre-graduate programs, a program in applied mathematics, or slant the program toward a career in business or industry.

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527*, Differential Equations with Linear Algebra

MATH 528*, Multidimensional Calculus

MATH 531, Mathematical Proof, or MATH 545, Introduction to Linear Algebra and Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 761, Abstract Algebra

MATH 762, Linear Algebra

MATH 767, One-Dimensional Real Analysis

MATH 784, Topology

MATH 788, Complex Analysis

Two approved MATH electives chosen in consultation with the academic adviser

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

PHYS 407-408, General Physics I and II, which may be used to satisfy general education requirements in Group 3

Bachelor of Science: Interdisciplinary Programs in Mathematics and Its Applications

The programs in interdisciplinary mathematics prepare students for employment in areas of applied mathematics and statistics. Some of them can lead to graduate work in appropriate fields (e.g., physics, computer science, or economics). The major may consist of mathematics combined with:

- Computer science,
- Economics,
- Statistics,
- Electrical science, or
- Physics

Each program requires 10 mathematics courses along with at least six courses in the discipline of the option. Specific requirements for each option are given in the following listing.

Computer Science Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527,* Differential Equations with Linear Algebra

MATH 528,* Multidimensional Calculus

MATH 531, Mathematical Proof

MATH 532, Discrete Mathematics

MATH 539, Introduction to Statistical Analysis

MATH 645,* Linear Algebra for Applications

MATH 753, Introduction to Numerical Methods I

One approved MATH elective chosen in consultation with the academic adviser

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required CS courses

CS 415, Introduction to Computer Science I

CS 416, Introduction to Computer Science II

CS 515, Data Structures

CS 516, Introduction to Software Design and Development

CS 520, Assembly Language Programming and Machine Organization

CS 620, Operating System Fundamentals

One course chosen in consultation with the academic adviser from the following:

CS 645, Intro. to Formal Specification and Verification

CS 659, Intro. to the Theory of Computation

One approved CS elective chosen in consultation with the academic adviser

Economics Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527, * Differential Equations with Linear Algebra

MATH 528, * Multidimensional Calculus

MATH 531, Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 645, * Linear Algebra for Applications

MATH 739, Applied Regression Analysis

One MATH courses chosen in consultation with the academic adviser from the following:

MATH 740, Design of Experiments I

MATH 741, Survival Analysis

MATH 742, Multivariate Statistical Methods

MATH 755, Probability and Stochastic Processes with Applications

One approved MATH elective chosen in consultation with the academic adviser

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

ECON 401, Principles of Economics (Macro)

ECON 402, Principles of Economics (Micro)

ECON 605, Intermediate Microeconomic Analysis

ECON 611, Intermediate Macroeconomic Analysis

ECON 726, Introduction to Econometrics

One approved ECON or DS course chosen in consultation with the academic adviser

Electrical Science Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527,* Differential Equations with Linear Algebra

MATH 528,* Multidimensional Calculus

MATH 531, Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 645,* Linear Algebra for Applications

MATH 646, Introduction to Partial Differential Equations

MATH 647, Complex Analysis for Applications

MATH 753, Introduction to Numerical Methods I

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

ECE 541, Electrical Circuits

ECE 548, Electronics Design I

ECE 603, Electromagnetic Fields and Waves I

ECE 633, Signals and Systems I

ECE 634, Signals and Systems II

ECE 757, Fundamentals of Communication Systems

Physics Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527,* Differential Equations with Linear Algebra

MATH 528,* Multidimensional Calculus

MATH 531, Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 645,* Linear Algebra for Applications

MATH 646, Introduction to Partial Differential Equations

MATH 647, Complex Analysis for Applications

MATH 753, Introduction to Numerical Methods I

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

PHYS 407, General Physics I

PHYS 408, General Physics II

PHYS 505-506, General Physics III

PHYS 615, Classical Mechanics and Mathematical Physics I

PHYS 616, Classical Mechanics and Mathematical Physics II

Two PHYS courses, chosen in consultation with the academic adviser from the following:

PHYS 508, Thermodynamics and Statistical Mechanics

PHYS 701, Introduction to Quantum Mechanics I

PHYS 702, Introduction to Quantum Mechanics II

PHYS 703, Electricity and Magnetism I

PHYS 704, Electricity and Magnetism II

PHYS 708, Optics

Statistics Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527,* Differential Equations with Linear Algebra

MATH 528,* Multidimensional Calculus

MATH 531, Mathematical Proof

MATH 539, Introduction to Statistical Analysis

MATH 645,* Linear Algebra for Applications

MATH 739, Applied Regression Analysis

MATH 755, Probability and Stochastic Processes with Applications

MATH 756, Principles of Statistical Inference

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Other required courses

CS 410, Introduction to Scientific Programming

Two MATH courses chosen in consultation with the academic adviser from the following:

MATH 740, Design of Experiments I

MATH 741, Survival Analysis

MATH 742, Multivariate Statistical Methods

Three approved MATH electives chosen in consultation with the academic adviser

Bachelor of Science in Mathematics Education

This professional degree program prepares students for mathematics teaching at the elementary, middle/junior high, or secondary level. The program is coordinated with the education department's teacher certification programs. For the elementary option, full certification requires the five-year program. Students may complete the degree requirements for middle/junior high or secondary option with full teacher certification in either four or five years. Students electing the four-year option must plan for one semester of student teaching (EDUC 694) in their senior year and must consult with the departmental adviser in order to accommodate the scheduling of required MATH courses. The five-year program requires a year-long teaching internship in the fifth year that can be coupled with other graduate work leading to a master's degree. See education, College of Liberal Arts.

Elementary School Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 539, Introduction to Statistical Analysis

MATH 545, Introduction to Linear Algebra and Mathematical Proof

MATH 619, Historical Foundations of Mathematics

MATH 621, Number Systems for Teachers

MATH 622, Geometry for Teachers

MATH 623, Topics in Mathematics for Teachers

MATH 657, Geometry

MATH 700, Introduction to Mathematics Education

MATH 703, The Teaching of Mathematics, K-6

Two approved MATH elective chosen in consultation with the academic adviser

Other required courses

CS 410, Introduction to Scientific Programming

PHYS 406, Introduction to Modern Astronomy, which may be used to satisfy general education requirements in Group 3

EDUC 500, Exploring Teaching

EDUC 700, Educational Structure and Change

EDUC 701, Human Development and Learning: Educational Psychology

EDUC 705, Alternative Perspectives on the Nature of Education

EDUC 706, Introduction to Reading In the Elementary Schools

Note: EDUC 703F, EDUC 703M and EDUC 751 are requirements for certification that may be taken as an undergraduate.

Middle/Junior High School Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 539, Introduction to Statistical Analysis

MATH 545, Introduction to Linear Algebra and Mathematical Proof

MATH 619, Historical Foundations of Mathematics

MATH 621, Number Systems for Teachers

MATH 622, Geometry for Teachers

MATH 623, Topics in Mathematics for Teachers

MATH 657, Geometry

MATH 698, Senior Seminar

MATH 700, Introduction to Mathematics Education

MATH 780, Teaching of Mathematics, 5-8

Two approved MATH elective chosen in consultation with the academic adviser

Other required courses

CS 410, Introduction to Scientific Programming

EDUC 500, Exploring Teaching

EDUC 700, Educational Structure and Change

EDUC 701, Human Development and Learning: Educational Psychology

EDUC 705, Alternative Perspectives on the Nature of Education

Note: EDUC 751 is a requirement for certification that may be taken as an undergraduate.

Secondary School Option

Required MATH courses

MATH 425, Calculus I

MATH 426, Calculus II

MATH 527, Differential Equations with Linear Algebra

MATH 528, Multidimensional Calculus

MATH 539, Introduction to Statistical Analysis

MATH 545, Introduction to Linear Algebra and Mathematical Proof

MATH 619, Historical Foundations of Mathematics

MATH 624, Analysis for Secondary School Teachers

MATH 657, Geometry

MATH 698, Senior Seminar

MATH 761, Abstract Algebra

MATH 700, Introduction to Mathematics Education

MATH 791, Teaching of Mathematics, 7-12

One approved MATH elective chosen in consultation with the academic adviser.

Other required courses

CS 410, Introduction to Scientific Programming

EDUC 500, Exploring Teaching

EDUC 700, Educational Structure and Change

EDUC 701, Human Development and Learning: Educational Psychology

EDUC 705, Alternative Perspectives on the Nature of Education

Note: EDUC 751 is a requirement for certification that may be taken as an undergraduate.

Minor in Mathematics

The Department of Mathematics and Statistics offers three minor programs: mathematics, applied mathematics, and statistics. These programs, which are open to all students enrolled at the University, require a minimum of five MATH courses as detailed below. Students whose major program requires more than two courses required by the minor program must substitute additional courses from the list of optional courses to meet the five-course minimum.

Mathematics Minor

Required (3): MATH 528*, MATH 531 (and MATH 761 (or 767)

Options (2): Two courses chosen from: MATH 527*, 656, 657, 658, 761, 762, 764, 767, 776, 783, 784, 788

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Applied Mathematics Minor

Required (4): MATH 527*, 528*, 645* (or 545), and 753

Options (1): One course chosen from: MATH 539, 644, 646, 647, 745, 746, 747, or 754

*These requirements can be satisfied by MATH 525-526, Linearity I-II.

Statistics Minor

Required (2): MATH 539 (or 644) and MATH 645 (or 545)

Options (3): Three courses chosen from: MATH 737, 739, 740, 741, 742, 744, 755, 756

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[^ back to top](#)

Mechanical Engineering (ME) ▼

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Chairperson: Todd S. Gross

Professor: Kenneth C. Baldwin, Barbaros Celikkol, Barry K. Fussell, Todd S. Gross, Robert Jerard, Joseph C. Klewicki, James E. Krzanowski, M. Robinson Swift, Igor I. Tsukrov

Affiliate Professor: Donald M. Esterling

Associate Professor: Gregory P. Chini, Diane Foster, Brad Lee Kinsey, John Philip McHugh, May-Win L. Thein

Affiliate Associate Professor: Vladimir Riabov

Assistant Professor: Yannis Korkolis, Christopher M. White, Martin M. Wosnik

Affiliate Assistant Professor: Gary Lapham, Timothy Upton

The Mechanical Engineering Program at UNH is accredited by the Engineering Accreditation Commission of [ABET](#), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Mission

In support of the University and college missions, the Department of Mechanical Engineering is dedicated to educating the highest quality engineering professionals and leaders. Graduates will be prepared to creatively solve engineering problems through the use of analysis, computation, and experimentation. Students completing the program should be well-informed citizens who have the ability to grow intellectually and are able to solve new, challenging problems with self-confidence. It is the department's intent to maintain a general and flexible curriculum that prepares students for both industrial practice and graduate education.

Educational Objectives

The goal of the UNH mechanical engineering program is to produce graduates who are good professionals and good citizens who 1) skillfully apply the fundamental principles of mathematics, science, and engineering; 2) solve engineering problems by integrating strong design, analysis, and experimental abilities with excellent communication skills; 3) successfully contribute to their respective corporate, government, or academic organizations; 4) demonstrate continuous growth by assuming positions of leadership in their profession, or by becoming successful entrepreneurs; by successfully completing advanced degrees and professional education; 5) are broadly educated citizens of society with an understanding of the impact of engineering solutions in a global/societal context; and 6) demonstrate a high level of

personal and social integrity through their ethical behavior and service to their peers, employers, communities, the nation, and the world.

Mechanical engineering is a challenging profession encompassing research, design, development, and production of aerospace vehicles, underwater vessels, instrumentation and control systems, nuclear and conventional power plants, and consumer and industrial products in general. The profession also makes contributions through more fundamental studies of material behavior, the mechanics of solids and fluids, and energy transformation. Additional information can be found at the mechanical engineering Web site, www.unh.edu/mechanical-engineering.

The Program

The program begins with courses in physics, mathematics, chemistry, and computer-aided design. The department has a four-semester mechanics thread, a four-semester thread in the thermal/fluid sciences, and a three-semester thread in systems and controls. Modern experimental methods are taught in a two-semester course starting in the junior year. The two-semester senior design project requires students to utilize the skills they have learned in their courses and to learn how to function in an engineering team. The five technical electives offered in the program give the students the opportunity to focus on advanced technical areas of their choice.

With their advisers' assistance, students should plan a program, based on the following distribution of courses, that totals not less than 128 credits. The outline that follows is typical only in format. Within the constraints of satisfying all the requirements and having all the necessary prerequisites, schedules may vary because of scheduling needs or student preference. Some mechanical engineering elective courses may not be offered every year.

The curriculum has 11 elective courses. These should be selected in consultation with a departmental adviser to lead to a balanced program that addresses chosen areas of interest. Five of the elective courses are selected from groups four through eight of the University's general education requirements, with the Group 7 general education course being either ECON 402 or EREC 411. One of the elective courses must be selected from the biological science listing of Group 3 of the general education requirements.

Five technical elective courses of at least three credits each are required. These may be selected from 600-700 level courses in the College of Engineering and Physical Sciences,

except for one course that may be selected from one of the following 400-500 level courses: ME 442, ME 542, ENE 520, ESCI 501, and ECE 543. Two technical electives can be used for studying a focused area such as a foreign language, professional program, or minor, with department approval.

Some programs may require additional elective courses to reach the minimum of 128 credits required for graduation. Other programs may exceed 128 credits to include all the required courses.

In order to graduate in the mechanical engineering major, students must have at least a 2.0 grade-point average in all engineering and science courses, including required technical electives normally taken as department requirements after the start of the junior year.

Predictor courses: To enter the junior-year courses in the mechanical engineering major, students must achieve a minimum grade-point average of 2.0 with no grade below C- in the following courses: PHYS 407, MATH 426, ME 525, ME 526, and ME 503.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
MATH	425	Calculus I	4	-
*CHEM	405	General Chemistry	4	-
ME	441	Engineering Graphics	4	-
General Education Elective			4	-
MATH	426	Calculus II	-	4
PHYS	407	General Physics I	-	4
General Education Elective			-	4
English	401		-	4
Total			16	16

*CHEM 403 and CHEM 404, General Chemistry, may be substituted for CHEM 405.

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
**MATH	527	Differential Equations	-	4
**MATH	528	Multidimensional Calculus	4	-

ME	525	Mechanics I	3	-
ME	503	Thermodynamics	-	3
ME	561	Introduction to Materials Science	-	4
PHYS	408	General Physics II	4	-
Technical Elective			3-4	-
ME	526	Mechanics II	-	3
Total			18-19	14
General Education Elective			4	

**MATH 525 and 526, Linearity, may be substituted for MATH 527 and 528, and a technical elective course.

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
General Education Elective			4	-
ME	608	Fluid Dynamics	3	-
ME	627	Mechanics III	3	-
ME	643	Elements of Design		3
ECE	537	Introduction to Electrical Engineering	4	-
ME	603	Heat Transfer	-	3
ME	646	Experimental Measurement & Data Analysis	-	4
ME	670	Systems Modeling, Simulation, & Control	-	4
CS	410	Intro to Scientific Programming	4	
Total			18	14

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
ME	705	Thermal System Analysis and Design	4	-

***ME	755	Senior Design Project I	2	-
ME	747	Experimental Measurement & Modeling	4	-
General Education Elective			4	-
Technical Elective			3-4	-
ME	756	Senior Design Project II	-	2
Technical Elective			-	3-4
Technical Elective			-	3-4
General Education Elective			-	4
Total			17-18	15-18
Technical Elective				3-4

***TECH 797, Undergraduate Ocean Research Project, may be substituted for ME 755 and ME 756

Mechanical Engineering Minor

The minor, administered by the Department of Mechanical Engineering, is open to all students of the University and offers a broad introduction to mechanical engineering.

Students must complete a minimum of six courses as follows: ME 441, ME 525, ME 526, ME 627, ME 503, and ME 608. Electrical and Computer Engineering majors should take the following courses: ME 441, ME 523, ME 526, ME 503, ME 608, and ME 561. Interested students should contact the mechanical engineering chair, Todd Gross (603) 862-2445.

Materials Science Minor

The minor, administered by the Department of Mechanical Engineering, is open to all students of the University and offers a broad introduction to materials science.

Students must complete at least 18 credits and a minimum of five courses as follows: ME 561 (required); ME 760 (required); and ME 730 (required); and two additional courses from the following: 731, 744, 761, 762, 763, and 795 (materials).

By mid-semester of their junior year, interested students should consult the minor supervisor,

James E. Krzanowski, Department of Mechanical Engineering (603) 862-2315.

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^ [back to top](#)

Physics (PHYS) ▼

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Chairperson: Eberhard Möbius

Professor: L. Christian Balling, Amitava Bhattacharjee, John R. Calarco, Olof E. Echt, James M.E. Harper, F. William Hersman, Martin A. Lee, Eberhard Möbius, James M. Ryan, Harlan E. Spence, Roy B. Torbert

Research Professor: Terry Forbes, Philip A. Isenberg, Nelson Maynard, R. Bruce McKibben, Charles W. Smith III

Associate Professor: Silas Robert Beane III, Per Berglund, Benjamin D. Chandran, James Connell, Maurik Holtrop, Lynn M. Kistler, Mark L. McConnell, Dawn C. Meredith, Karsten Pohl, Joachim Raeder

Research Associate Professor: Charles J. Farrugia, Antoinette B. Galvin, Harald A. Kucharek, Marc R. Lessard, Clifford Lopate, Bernard J. Vasquez

Assistant Professor: Kai Germaschewski, Karl Silber, Jian-Ming Tang

Research Assistant Professor: Li-Jen Chen

Physics is concerned with the properties of matter and the laws that describe its behavior. It is an exact science based on precise measurement, and its objective is the kind of understanding that leads to the formulation of mathematical relationships between measured quantities. As a fundamental science, its discoveries and laws are basic to understanding in nearly all areas of science and technology. Advances in such diverse fields as medical instrumentation, solid state electronics, and space research have relied heavily on the application of basic physical laws and principles.

Students interested in the study of physics at the University of New Hampshire will find a strong interaction between research and academic programs. Undergraduates have participated in research studies ranging from nuclear scattering experiments at major particle accelerators to astrophysical studies of the solar system using space probes. These experiences have proven beneficial to engineering and physics students alike. The department is located in DeMeritt Hall (completed in 2008) and Morse Hall. Both buildings are equipped with state-of-the art research

facilities and laboratories. DeMeritt Hall also houses the physics library, classrooms, and a number of open and comfortable meeting areas, which provide an inviting atmosphere for study, interaction, and collaboration.

The suggested programs that follow are indicative of the flexibility available to students, whether they are preparing for graduate work in physics or astronomy, industrial opportunities, governmental research, secondary-level teaching, or a general education that might utilize the fundamental knowledge of physics.

Several undergraduate degree programs are offered through the department of physics. The B.S. degree is designed for students who wish to work as professional physicists or engineers; the interdisciplinary options in chemical physics, materials science, and astronomy allow students to combine physics with other disciplines. The B.A. degree is designed for students who want a strong background in physics but also want a broad liberal arts education. A minor in physics allows a student to combine an interest in physics with another major.

Physics-related degrees are also offered in other departments. For those students with strong interests in both math and physics, the [Department of Mathematics](#) offers a B.S. interdisciplinary option in physics. For those interested in a career as a middle- or high-school educator in both physics and chemistry, the [Department of Chemistry](#) offers a B.A. in chemistry and physics teaching.

Interested students are encouraged to contact the department for further information. More detailed information is also on the physics department Web page at www.physics.unh.edu.

Minor in Physics

The minor in physics consists of five courses in physics. All students must take PHYS 407, 408, and 505, including labs. Two other physics courses at the 500 level or above must be chosen in consultation with the student's physics minor adviser.

Bachelor of Arts, Chemistry and Physics Teaching

For information, see [Chemistry](#).

Physics Major, Bachelor of Arts

This degree provides an opportunity for a broad and liberal arts education, which in some cases may be sufficient for graduate work. A judicious choice of electives may also prepare students for interdisciplinary programs that require proficiency in a restricted area of physics.

Requirements

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of arts degree requirements.
3. PHYS 400, 407-408, 505, 506, 508, 605, 615, 616, 701, 703, 705. Note that MATH 425, 426, and MATH 525, 526 or MATH 527, 528 are prerequisites for some of the courses.

In the following table, "Electives" include general education courses, writing intensive courses, language courses required for the B.A., and free choice electives.

Suggested Curriculum for B.A. in Physics**Freshman Year**

Abbreviation	Course Number	Title	Fall	Spring
PHYS	400	Freshman Seminar	1	-
PHYS	407-408	General Physics I and II	4	4
MATH	425, 426	Calculus I and II (Group 2)	4	4
ENGL	401	First-Year Writing	-	4
Elective			8	4
Total			17	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
PHYS	505-506	General Physics III and Lab	4	-
PHYS	615	Classical Mechanics and Mathematical Physics I	-	4
MATH	525	Linearity I		
or MATH	527	Differential Equations	6 or 4	-
MATH	526	Linearity II		
or MATH	528	Multidimensional Calculus	-	6 or 4
Elective			8	8
Total			16 or 18	16 or 18

Junior Year

Abbreviation	Course	Title	Fall	Spring
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	Number			
PHYS	605	Experimental Physics I	5	-
PHYS	508	Thermodynamics and Statistical Mechanics	-	4
PHYS	616	Classical Mechanics and Mathematical Physics II	4	-
PHYS	701	Introduction to Quantum Mechanics I	-	4
Electives			8	8
Total			17	16

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
PHYS	705	Experimental Physics II	-	4
PHYS	703	Electricity and Magnetism I	-	4
Elective			16	8
Total			16	16

Bachelor of Science in Physics

The bachelor of science degree in physics prepares students for professional work as physicists. The required courses are those typically necessary for admission to graduate study in physics or astronomy. The interdisciplinary options require fewer physics courses combined with a concentration in another area (chemistry or materials science). The astronomy option emphasizes courses that help prepare a student for advanced studies in astronomy.

Requirements

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science university requirements.
3. Minimum physics requirements: 400, 407-408, 505, 506, 508, 605, 615-616, 701, 702, 703, 704, 705; two physics electives selected from the 700-level physics courses.
4. Chemistry: 403-404 or 405
5. Math: 425-426, and 525-526 or 527-528
6. Computer Science: CS 410
7. By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Physics electives

In the following table, "Electives" include general education courses, writing intensive courses, physics electives, and free choice electives. Note that physics electives can only be taken in the junior or senior year because of prerequisites, and are in general offered every other year.

Suggested Curriculum for B.S. in Physics**Freshman Year**

Abbreviation	Course Number	Title	Fall	Spring
PHYS	400	Freshman Seminar	1	-
PHYS	407-408	General Physics I and II	4	4
MATH	425, 426	Calculus I and II (Group 2)	4	4
CHEM	403-404	General Chemistry (Group 3)	4	4
ENGL	401	Freshman English	-	4
Elective			4	-
Total			17	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
PHYS	505-506	General Physics III and Lab	4	-
PHYS	508	Thermodynamics and Statistical Mechanics	-	4
PHYS	615	Classical Mechanics and Mathematical Physics I	-	4
MATH	525	Linearity I		
or MATH	527	Differential Equations	6 or 4	-
MATH	526	Linearity II		
or MATH	528	Multidimensional Calculus	-	6 or 4
CS	410	Introduction to Scientific Programming	4	-
Elective			4	4
Total			16 or 18	16 or 18

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
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PHYS	605	Experimental Physics I	5	-
PHYS	616	Classical Mechanics and Mathematical Physics II	4	-
PHYS	701	Introduction to Quantum Mechanics I	-	4
PHYS	703	Electricity and Magnetism I	-	4
Electives			8	8
Total			17	16

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
PHYS	702	Quantum Mechanics II	4	-
PHYS	704	Electricity and Magnetism II	4	-
PHYS	705	Experimental Physics II	-	4
Elective			8	12
Total			16	16

Chemical Physics Option, Bachelor of Science in Physics

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science University requirements.
3. Physics requirements: PHYS 400, 407-408, 505-506, 508, 605, 615, 616, 701, 702, 703, 705.
4. Chemistry: CHEM 403, 404, 683-686, 762, 763, 776
5. Mathematics: MATH 425-426, 525-526 or 527-528
6. Computer Science: CS 410
7. Electives in Option: Two courses selected from CHEM 547/9, MATH 646, PHYS 718, PHYS 795
8. By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Materials Science Option, Bachelor of Science in Physics

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science University requirements.
3. Physics requirements: PHYS 400, 407-408, 505-506, 508, 605, 615-616, 701, 703, 705,

795 (4 credit hours), 799 (4 credit hours).

4. Mechanical Engineering: 561, 730, 760
5. Math: 425-426, 525-526, or 527-528
6. Computer Science: CS 410
7. Electives in Option: Three courses selected from MATH 646, ME 731, 761, 762, 763, 795, PHYS 718
8. Chemistry: 403-404 or 405
9. By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

Astronomy Option, Bachelor of Science in Physics

1. Satisfy general education and writing requirements.
2. Satisfy bachelor of science University requirements.
3. Physics requirements: PHYS 400, 406, 407-408, 505, 506, 508, 605, 615-616, 701, 702, 703, 704, 705, 710, 795 (4 credit hours), 799 (4 credit hours).
4. Chemistry: CHEM 403-404 or CHEM 405
5. Math: MATH 425-426 and 525-526 or 527-528
6. Computer Science: CS 410
7. Elective in option: Choose one course from PHYS 708, PHYS 712, PHYS 720, PHYS 764, PHYS 791
8. By the end of the spring semester of the sophomore year, a student must have a minimum grade of C in each 400- or 500-level course specifically required for the B.S. degree and an overall grade-point average of at least 2.33 in these courses in order to continue in the B.S. program.

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^ [back to top](#)

Technology (TECH) ▼

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College of Health and Human Services

[Introduction](#)[Degrees](#)[Other Programs](#)[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Health and Human Services ▼

[» http://www.chhs.unh.edu/](http://www.chhs.unh.edu/)*Dean:* Barbara Arrington*Associate Dean:* Neil B. Vroman*Academic Counselor:* Pamela Bishop

Introduction ▼

The College of Health and Human Services, established in 1968, was created in response to the growing need for programs in higher education that prepare young men and women for health-related careers. The college offers undergraduate instruction leading to the bachelor of science degree in communication sciences and disorders, family studies, health management and policy, kinesiology, nursing, occupational therapy, recreation management and policy, and social work. Each program enables students to acquire the basic knowledge and skills needed to practice their chosen professions and to obtain a broad cultural background in the humanities and social sciences.

Undeclared Major ▼

A limited number of well-qualified first-year students who have expressed an interest in a health-related career but who are undecided about a specific major may enter the College of Health and Human Services as undeclared students. Undeclared students should explore possible majors by selecting courses from those listed below.

Required Courses

ENGL 401, Freshman English

PSYC 401, Introduction to Psychology

ZOOL 507-508, Human Anatomy and Physiology

Exploration Courses

COMM 520, Survey of Communication Disorders

FS 525, Human Development

HMP 401, U.S. Health Care Systems

KIN 500, Historical and Contemporary Issues in Physical Education

KIN 585, Emergency First Responder

NUTR 400, Nutrition Health and Well Being

RMP 490, Recreation and Leisure in Society

SW 424, Introduction to Social Work

All HHS undeclared students are advised by a professional academic counselor. Upon declaration of a specific major, each student is assigned to a faculty adviser within the major department.

Degree Requirements ▼

Candidates for the B.S. and B.A. degree must satisfy all **general education requirements** for graduation, earn at least 128 credits, successfully complete the courses required in one of the curricula described in this section, and achieve the required minimum grade-point average in the chosen curriculum. Generally, courses are to be completed in the sequence in which they are arranged.

Minors: See **University Academic Requirements**; also see Degrees and Major Programs of Study.

Dual-degree programs: See **University Academic Requirements**.

Student-designed majors: See **Special University Programs**.

Second majors: See **University Academic Requirements**.

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College of Health and Human Services

Introduction

Degrees

- Bachelor of Science

Other Programs

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Health and Human Services ▼

» <http://www.chhs.unh.edu/>

Bachelor of Science ▼

Athletic Training

Communication Sciences and Disorders

Family Studies

Child Advocacy and Family Policy
Young Child/Nursery-Kindergarten
Family Support/Family Life Education
Individual and Family Development

Health Management and Policy

Public Health

International Affairs (dual major)

Kinesiology

Exercise Science
Outdoor Education
Sports Studies
Physical Education Pedagogy

Nursing

Occupational Therapy

Recreation Management and Policy

Program Administration
Therapeutic Recreation

Social Work

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College of Health and Human Services

[Introduction](#)[Degrees](#)[Other Programs](#)[◦ Disabilities Minor](#)[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Health and Human Services ▼

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Disabilities Minor ▼

This interdisciplinary minor is offered by several of the departments in the College of Health and Human Services. The minor will prepare undergraduate students to apply their unique disciplinary skills in an interdisciplinary service delivery environment. Graduates work with and support individuals with disabilities and their families to become fully engaged in their communities, achieving independence and increasing quality of life. The 18-credit curriculum consists of two required courses (EDUC 750, HHS 798), two elective courses, and a two-credit independent study.

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College of Health and Human Services

Introduction

Degrees

Other Programs

Programs of Study

- Communication Sciences and Disorders
- Family Studies
- Health Management and Policy
- International Affairs (dual major)
- Kinesiology
- Nursing
- Occupational Therapy
- Recreation Management and Policy
- Social Work

Undergraduate Course Catalog 2009-2010

College of Health and Human Services ▼

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Communication Sciences and Disorders (COMM) ▼

» <http://www.chhs.unh.edu/csd/>

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Chairperson: Stephen N. Calculator

Professor: Stephen N. Calculator

Associate Professor: Steven P. Bornstein, Penelope E. Webster

Affiliate Associate Professor: Mark R. Windt

Assistant Professor: Michael Fraas, Bryan M. Ness

Clinical Associate Professor: Jeanne H. O'Sullivan, Ruth E. Peaper, Amy S. Plante, Rae M. Sonnenmeier

Clinical Assistant Professor: Sheryl Gottwald, Mary Jane Sullivan

Lecturer: Pamela E. Broido, Kevin J. Fleese, Donna Schefer, Michael Wallace

Communication sciences and disorders is the profession devoted to helping people overcome disabilities of speech, language, and hearing. The study of communication sciences and disorders may begin in the freshman or sophomore year. Students learn about speech, language, and hearing disorders in the classroom and are involved in clinical observation in the on-campus Speech-Language-Hearing Center. Students are encouraged to take elective courses in linguistics, human development, learning theory, early childhood, health administration, special education, and various aspects of rehabilitation.

Students are advised to continue their professional education at colleges or universities offering graduate programs leading to a master's degree and to subsequent certification by the American Speech-Language-Hearing Association. Certified clinicians find employment opportunities in hospitals, schools, community speech and hearing clinics, and private practice.

The required courses in communication sciences and disorders that all students in the program must successfully complete are COMM 520, Survey of Communication Disorders; COMM 521,

Anatomy and Physiology of the Speech and Hearing Mechanism; COMM 522, The Acquisition of Language; COMM 524, Clinical Phonetics; COMM 630, Organic Pathologies; COMM 631, Articulation and Language Disorders in Children; COMM 635, Professional Issues in Speech-Language Pathology; COMM 704, Basic Audiology; COMM 705, Introduction to Auditory Perception and Aural Rehabilitation; and COMM 777, Speech and Hearing Science. Students also must complete KIN 706, Neurology, and a course in statistics. Other elective courses are available.

Students must have a grade-point average of 3.0 at the end of their sophomore year to continue in the major. A 3.0 grade-point average is also required to transfer into the major. Students interested in this program should consult with the chairperson, Stephen N. Calculator., and a course in statistics. O

Minor in Deaf and Hard of Hearing Studies

The minor in deaf and hard of hearing studies is intended to provide students with courses leading to specialized knowledge related to the fields of deafness and hearing loss. It will be of interest to students who intend to engage in teaching, counseling, rehabilitation, social work, and other professions in which contact with individuals who are deaf or hard of hearing may be expected. There may be some interest as well on the part of students majoring in TESOL and linguistics due to the bilingual aspect of part of the field study. (Individuals whose native language is American Sign Language (ASL) receive instruction in English as a second language.) Finally, it will be a good option for those students who wish to move on to graduate study in the fields of deaf education, rehabilitation counseling, speech-language pathology, and audiology. Minor coordinator: Mary Jane Sullivan.

Curriculum and Requirements

The minor in deaf and hard of hearing studies will require the following for a minimum of 20 credits:

Three required courses:

COMM 575, Fundamentals of Hearing Loss
COMM 401, American Sign Language I
COMM 536, Introduction to Deaf Studies

Two electives from the list of electives, below:

COMM 402 American Sign Language II
COMM 522, Acquisition of Language*
COMM 704, Audiology*
COMM 705, Auditory Perception and Aural Rehabilitation*

COMM 734, American Sign Language III
COMM 735, American Sign Language IV
COMM 738, Linguistics of American Sign Language
COMM 779, Internship in Deaf/Hard of Hearing Studies (permission required)
COMM 798 Special Topics (offerings vary)

* required of CSD majors

Communication sciences and disorders majors may not use a course required of their major to fulfill both major and minor requirements.

Students in the minor must earn a grade of C- or better in each course in order to receive credit for the course in the minor. A maximum of eight credits will be accepted in transfer.

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^ [back to top](#)

Family Studies (FS) ▼

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Chairperson: Elizabeth M. Dolan

Associate Professor: Elizabeth M. Dolan, Barbara R. Frankel, Michael F. Kalinowski, Kerry Kazura, John W. Nimmo, Corinna Jenkins Tucker

Assistant Professor: Dora Wu Chen

Clinical Associate Professor: Mark Moses

Extension Educators: Charlotte W. Cross, Paula J. Gregory, Suzann E. Knight, Malcolm L. Smith

The department's mission is to support the well-being of individuals and families through research, teaching, and service. Programs emphasize both theoretical and practical knowledge about lifespan development, the social and economic roles of families, child advocacy, teacher and parent education, and intervention programs that support families. The department is committed to acknowledging and supporting diversity, to providing an educational environment that stresses excellence and innovation, and to developing exemplary programs to serve both students and the larger community.

Students learn about families through integration of developmental, theoretical, and empirical information. The department offers a B.S. degree in family studies. Each student selects from one of the four specializations, each offering unique opportunities. Students prepare for

positions in family service organizations, educational settings and programs, corporations, and government agencies. Each specialization has entry-level criteria and specific course requirements. All require close consultation with a faculty adviser. Any changes or updates are posted on our Web site.

The preschool/third grade teaching certification and the certified family life educator programs are highly structured and may have limited enrollment. Acceptance to these programs and to internships and practica is restricted to students demonstrating exceptional potential for working with children and families.

Major Requirements

Core courses required of each family studies major are: FS 525, Human Development, and FS 545, Family Relations. A minimum of nine family studies courses is required, at least two of which must be at the 700 level. Twenty credits of supporting coursework are selected in consultation with the adviser. These courses must be 500 level or above and must include at least 12 credits in courses outside the department. Each specialization has required or recommended supporting courses. Some departmental specializations may specify general education courses because they enhance the plan of study. Family studies majors are required to complete an undergraduate statistics course.

Child Advocacy and Family Policy Specialization

This specialization focuses on analyzing and solving problems related to children and their families, with a primary emphasis on unmet needs. The goal is for students to complete their degree with a detailed understanding of human development, family relations, educational and government initiatives and regulations, cultural differences, statistics, politics, and effective communication strategies. The specialization is designed to prepare students for entry-level positions as advocates or policy generalists, or to pursue a graduate degree.

Department Requirements

FS 525, Human Development

FS 545, Family Relations

FS 553, Personal and Family Finance for Family Life Educators, or FS 653, Family Economics

FS 623, Development Perspectives on Infancy and Early Childhood, or FS 624, Developmental Perspectives on Adolescence and Early Adulthood

FS 641, Parenting Across the Lifespan, or FS 743, Families, Schools and Community, or FS 760, Family Programs and Policies

FS 746, Human Sexuality or FS 757, Race, Class, Gender and Families

FS 772, Child Advocacy

FS 773, International Perspectives on Families and Young Children

FS 794, Families and the Law

FS 712, 714, Internship

Supporting Courses

ENGL 503, ENGL 502, or CMN 456; CSL 201, CSL 202, CSL 204, or CSL 208 and CSL 209;
SW 705 or PSYC 581; EDUC 500, EDUC 507, or FS 635; elective approved by adviser.

Young Child Specialization/Preschool-Third Grade Teaching Certification

This concentration is for those who have a broad interest in working with young children ranging in age from birth to age eight. This specialization has four major foci: child development, teaching methodology and curriculum development, developmentally appropriate learning environments for young children, and home-school-community relations.

The preschool-third grade (P-3) teacher certification program is offered for students graduating in 2009 and 2010. For updated information please refer to the departmental Web site. The P-3 certification is a highly competitive program within the young child specialization. Students who qualify and who are accepted into the program will participate in student teaching in their senior year. Applications to the P-3 program are completed by students during the fall of the junior year.

Department Requirements

FS 525, Human Development*

FS 545, Family Relations*

FS 623, Developmental Perspectives on Infancy and Early Childhood*

FS 635, Teaching and Learning in Early Childhood Settings*

FS 708-709, Advanced Child Development Internship*

FS 733, Supervising Programs for Young Children*

FS 734, Curriculum for Young Children*

FS 743, Families, Schools and Community*

FS 771, Observation and Assessment*

Students accepted into the certification program must also enroll in the following courses during their senior year:

FS 785, Seminar for Student Teachers*

FS 786, Seminar for Student Teachers*

FS 788, Student Teaching of Young Children*

Supporting Courses

EDUC 500* (may substitute FS 708 or FS 709 if not planning to apply to P-3); THDA 622*;

PSYC 581; KIN 600 or 675*; MATH 601* or EDUC 741* ; FS 760, 772, 773, 794, 797 (Families in Poverty); EDUC 706*, 703M* and 703F*, 733, 734, 750, 751, 760*.

*These courses are required for P-3 certification.

Family Support/Provisional Certification Family Life Education

This specialization is for students interested in working with children, adolescents, and adults either as individuals or as families. Students develop knowledge and skills to prepare them to provide family support, direct services, and family life education. This specialization prepares students to work in human service settings. Students may choose a plan of study leading to a provisional certification as a family life educator.

The National Council on Family Relations has approved the Department of Family Studies undergraduate program as meeting the standards and criteria required for the Provisional Certified Family Life Educator (CFLE) designation. Certified family life educators work in a variety of settings including social services, health services, child care, family support, youth programs, parent education, junior and senior high schools, and universities and colleges. The designation recognizes expertise in a broad range of issues that constitute family life education and increases credibility by validating the individual's education and experience.

Department Courses

FS 525, Human Development*

FS 545, Family Relations*

FS 641, Parenting Across the Life Span*

FS 746, Human Sexuality*

FS 757, Race, Class and Gender*

FS 760, Family Programs and Policies*

FS 794, Families and the Law*

FS 553, Personal and Family Finance for Family Life Professionals*, or FS 653, Family Economics*

FS 623, Developmental Perspectives on Infancy and Early Childhood, or FS 624, Developmental Perspectives on Adolescence and Early Adulthood

FS 772, International Approaches to Child Advocacy, or FS 773, International Perspectives on Children and Families

Students accepted into the CFLE Program must also take:

FS 782, Family Internship*

FS 792, Seminar for Family Interns*

Supporting Courses

Gerontology Minor: Research Methods course (e.g., PSYC 502)

NURS 535; PSYC 552, 582; SOC 525, 540, 675; SW 524, 525, 697A, 697B, 697C; CMN 530 or PSYC 762.

*These courses are required for the Certified Family Life Educator designation.

Individual and Family Development Specialization

This specialization is for students with a broad interest in working with families. This specialization provides knowledge about specific life stages of individuals within the context of family systems with a focus on system dynamics, diverse family systems, gender, and cultural differences. This plan of study is designed particularly for those expecting to attend graduate school and those who desire a general background in lifespan development and family dynamics.

Department Requirements

FS 525, Human Development

FS 545, Family Relations

FS 623, Developmental Perspectives on Infancy and Early Childhood

FS 624, Developmental Perspectives on Adolescence and Early Adulthood

FS 641, Parenting Across the Lifespan

FS 653, Family Economics

FS 746, Human Sexuality

FS 757, Race, Class and Gender

FS 794, Families and the Law

Supporting Courses

FS 760, Family Programs and Policies

FS 782, Family Internship

FS 792, Family Internship Seminar

Research Methods course (e.g., PSYC 502, Research Methods in Psychology)

PSYC 552, 581, 582

NURS 535

SOC 540

A foreign language

Work with the Institute on Disability

Family Internships

Internship students will apply knowledge gained from their academic studies in a supervised

environment. The internship involves a commitment of fifteen hours per week for two semesters, plus a three-hour seminar every other week. Students apply for the internship during the spring semester of their junior year. Internship applicants must have completed 20 credits of departmental coursework prior to their senior year with a minimum overall grade-point average of 3.0 and a departmental grade-point average of 3.2 or higher. Internship requirements vary depending on specialization. Internship courses will count toward the 20 credits required in supporting courses.

Family Studies Minor

The department offers a minor to interested students in related majors. Minor requirements include FS 525, FS 545, and three additional courses chosen in consultation with a departmental adviser. Individual course grades must be C or above and the overall grade-point average for the 20 credits must be at least 2.0. Students desiring a minor in family studies are advised to consult with the departmental administrative manager as early as possible.

Child Life Minor

The interdisciplinary minor is offered by the Department of Family Studies and the therapeutic recreation option in the Department of Recreation Management and Policy. Upon completion of course requirements, students will be able to sit for the child life specialist exam. Family studies majors are required to take three core courses: RMP 502, FS 525, and FS 623. FS students will select two courses from the following: RMP 501, RMP 503, RMP 504, RMP 603, RMP 604. Students will complete an internship that will entail a minimum of 480 hours of experience and be supervised by a certified child life specialist. Family studies majors will be assigned a minor adviser from therapeutic recreation.

Adolescence Minor

The UNH Center on Adolescence, in conjunction with the Departments of Family Studies and Recreation Management and Policy, offers a minor in adolescent and youth development. The minor is designed to provide students an opportunity to develop knowledge and skills regarding adolescence and youth development. Required courses offer a foundation in theory, research, and practice for all minors. Students select three additional courses from a wide array of more specialized offerings from collaborating departments. In order that students may be assisted in developing a cohesive plan of study for their minor, a simple application process will be used. Only students who have submitted an application, been accepted into the minor, and have completed the required coursework will be identified as having achieved a minor in adolescent and youth development. Students will select two courses from: FS 624, Developmental Perspectives on Adolescence and Early Adulthood; FS 750, Contemporary Issues in Adolescent Development; RMP 668, Youth Culture and Programs. Students will select three

electives from: EDUC 710c, Youth Organizations; EDUC 797, Seminar in Early Adolescent Development; EDUC 717, Growing Up Male in America; EDUC 735, Young Adult Literature; FS 797, Adolescent Males and Violence; KIN 565, Principles of Coaching; RMP 558, Program Supervision and Leadership; RMP 560, Recreational Sport Management; RMP 730, Camp Administration and Leadership; RMP 760, Community Sport Organizations: Administration and Development; SOC 525, Juvenile Crime and Delinquency; SOC 773, Sociology of Childhood; RMP 563 or FS 707, Practicum; EDUC 507, Mentoring Adolescents.

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^ [back to top](#)

Health and Human Services (HHS) ▼

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Health Management and Policy (HMP) ▼

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Chairperson: James B. Lewis

Professor: Barbara Arrington, Cynthia M. Duncan, Leslie N.H. MacLeod, John W. Seavey, Lee F. Seidel, Robert S. Woodward

Associate Professor: Rosemary M. Caron, Marc D. Hiller, James B. Lewis

Assistant Professor: Semra Aytur, Robert J. McGrath

Research Assistant Professor: David J. Laflamme

Clinical Professor: Edgar J. Helms Jr.

Undergraduates majoring in the health management and policy program are prepared to embark upon management careers in a wide range of health care delivery and financing organizations, public health, and health policy. Graduates work in many settings, including health care delivery systems, hospitals, nursing homes, health maintenance and other managed care organizations, public health departments, community-based and home-health agencies, mental health facilities, regulatory bodies, consulting companies, and insurance companies.

The academic program is interdisciplinary, with undergraduates taking courses in many academic units of the University. Students gain a broad view of health and health care while

developing analytical skills in health care management and policy. The department uses a computer laboratory that is integrated throughout the curriculum.

The department's undergraduate program maintains full certification by the Association of University Programs in Health Administration (AUPHA). Students have the opportunity to become student members in the American College of Healthcare Executives and the American College of Health Care Administrators, both of which are represented by student chapters at the University. There also is an organization for students interested in public health issues. The department curriculum is approved under the New England Regional Student Program.

Academic Program

Competencies are achieved through three components of the curriculum: University general education requirements, HMP collateral courses, and the HMP core courses, which include a field practicum. Students work closely with their assigned faculty advisers to develop a plan of study to achieve completion of each of these components. Upper-division HMP courses are sequenced in a two-year progression as described in departmental handouts to all majors. Students are expected to follow this sequence; any exceptions are made by petition. Late transfers may have to plan for an extra year. Several upper-division HMP elective courses are available.

University General Education Requirements:

Advisers assist students in selecting courses that satisfy certain program expectations and simultaneously meet University general education requirements.

HMP-Required Collateral Courses:

A basic understanding is expected in each of the following areas related to health management and policy: 1) microeconomics, 2) finite mathematics, and 3) statistics. HMP faculty advisers work with students to select the appropriate courses to fulfill these requirements. Students are strongly advised to complete their collateral coursework prior to their junior year in the major.

HMP Core Courses:

Each of the following courses must be completed by HMP majors prior to graduation:

Introductory courses include HMP 401, U.S. Health Care Systems; HMP 501, Epidemiology and Community Medicine; and HMP 570, Social Marketing.

Upper-division courses include HMP 630 and HMP 631, Health Issues Seminar; HMP 642, Health Economics; HMP 711, Health Systems Research I; HMP 712, Health Systems Research II; HMP 721, Managing Health Care Organizations I; HMP 722, Managing Health Care Organizations II; HMP 723, Health Planning; HMP 740, Health Care Financial

Management I; HMP 741, Health Care Financial Management II; and HMP 742, Strategic Management for Health Care Organizations or HMP 744, Ethical Issues in Health Management and Medicine; and HMP 746, Health Policy. Upper-division courses are not offered every semester and students progress through these courses in a sequential order.

Students are required to meet with their departmental academic adviser to ensure appropriate scheduling of classes within the major.

Field Practicum:

A full-time practicum (or administrative internship) that integrates class work with a supervised managerial work experience constitutes an essential part of the academic program. It allows students to explore an area of special interest in depth. Courses comprising this component of the major include: HMP 621, Prepracticum Seminar; HMP 622, Field Practicum; and HMP 624, Post Practicum Seminar. The practicum is divided into three concurrent components: A. Field Practicum Organizational Analysis; B. Field Practicum Management Skills Development; and C. Field Practicum Project Analysis. Field practicum sites are selected by faculty with student involvement and are concentrated in central and northern New England. Given sufficient timing of student requests, efforts will be made to arrange practica at distant sites based on special needs.

HMP field practica currently occur during the summer between the junior and senior year within the curriculum. They begin in late May and end in late August and require a full-time commitment of a minimum of 400 hours.

Academic Requirements:

HMP majors must obtain a minimum of a C- in all HMP core courses and must pass all HMP-required collateral courses. Majors must have an overall grade-point average of 2.5 by the end of the semester preceding their practicum. Students not maintaining an overall grade-point average of 2.5 are reevaluated by the faculty and may be counseled into another major at the University.

The faculty reviews student performances during the semester before the practicum to determine each student's readiness. Students who do not successfully complete prerequisite courses may not be permitted to advance through subsequent courses in the major.

Applications for Major

Students interested in additional information or in applying for admission to the health management and policy major should contact the department's director of undergraduate studies. Students seeking internal transfer into the major must complete an internal transfer application form. Efforts should be made to complete this process during the freshman year or

early in the sophomore year to ensure sufficient time to complete all of the required collateral courses as well as those in the major in a timely manner.

Honors-in-Major

The department offers an honors-in-major program. To qualify, students must meet the department's requirement of having an overall 3.2 grade-point average at UNH and a 3.3 grade-point average for required HMP courses taken by the end of the junior year. Honors in major students take honors courses during the last half of junior year and senior year and complete an honors project. Students work with a faculty member in the department in the development of the honors project. Students should contact the department's honors in major adviser for further information.

Academic Minor in Health Management

The department offers an integrated minor in health management designed for students in any major. Students must complete: HMP 401, U.S. Health Care Systems; HMP 501, Epidemiology and Community Health; HMP 570, Social Marketing; 721, Managing Health Care Organizations; and either HMP 710, Financial Management for Clinicians, or HMP 740 Financial Management for Health Care Organizations. Students seeking to minor in health management must meet with the department's director of undergraduate studies before commencing the minor.

Public Health Minor

The Department of Health Management and Policy also offers a minor in public health. Public health deals with the health of populations and focuses on health promotion and disease prevention as well as access to the medical system. The public health minor requires 20 credits. The minor introduces students to many of the foundation areas of public health, and provides a basic exposure to key concepts and skills in the five core disciplines of public health, as articulated by the Council on Education for Public Health. All students are required to complete: HMP 403, Introduction to Public Health; HMP 501, Epidemiology and Community Medicine; HMP 505, Public Health: History & Practice; HMP 569, Behavior and Public Health; and HMP 570, Social Marketing. The minor is open to any baccalaureate student at UNH.

Public Health Option

This option provides students with the knowledge and skills for entry-level positions within the public health agencies workforce. The public health field is emerging as a key area for the protection of population health. This option provides students with an introduction to many of the foundation areas of public health and gives basic exposure to key concepts and skills in the

five core disciplines of public health as articulated by the Council on Education for Public Health. The core courses are biostatistics, epidemiology, environmental health sciences, health services administration, and social and behavioral sciences.

The public health option at UNH is one of the few programs at the undergraduate level available nationally.

Required Courses

ECON 401, Microeconomics
MATH 420 or equivalent in Finite Mathematics
HMP 401, US Health Care Systems
HMP 403, Introduction to Public Health
HHS 540 or equivalent in Statistics
HMP 501, Epidemiology and Community Medicine
HMP 569, Public Health and Human Behavior
HMP 570, Social Marketing
HMP 711, Health Services Research I
HMP 715, Environmental Health
HMP 721, Management of Health Care Organizations I
HMP 740, Health Care Financial Management I
HMP 621, Pre-Practicum
HMP 712, Health Services Research II
HMP 630, Health Issues Seminar I
HMP 631, Health Issues Seminar II
HMP 642, Health Economics
HMP 723, Health Planning
HMP 622, Field Practicum (Summer session junior year)
HMP 624, Post Practicum
HMP 744, Health Care Ethics and Law
HMP 746, Health Policy
HMP 748, Health Policy Analysis

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^ [back to top](#)

International Affairs (dual major) ▼

For program description, see [Special University Programs](#).

^ [back to top](#)

Kinesiology (KIN) ▼

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Chairperson: Ronald V. Croce

Professor: Ronald V. Croce, Michael A. Gass, Stephen H. Hardy

Associate Professor: Heather Barber, Karen E. Collins, John P. Miller, Timothy J. Quinn, Erik E. Swartz, Neil B. Vroman, Steven C. Wright

Assistant Professor: Brent J. Bell, Summer Cook, Michelle A. Grenier, Dain LaRoche, Jayson O. Seaman

Clinical Associate Professor: Daniel R. Sedory

Clinical Assistant Professor: Tara Flippo, Laurie Gullion, Kenneth T. Hult, Allison MacKenzie, Pam McPhee

Instructor: Karen N. Henny

Senior Lecturer: Thomas W. Ashwell

The mission of the Department of Kinesiology is to generate, transmit, and apply knowledge about the role of physical activity (including exercise, movement, outdoor adventure experiences, and sport) in the advancement of health in society. The department has several teaching, research, and service functions that support this mission, including the preparation of professionals in the one major and four options described below. While programs vary in emphasis, each curriculum offers students fundamental knowledge in the following areas: the biological, psychological, and sociocultural foundations and consequences of physical activity; the pedagogical and rehabilitative aspects of physical activity; and the management and marketing of delivery systems in the field. Each program makes extensive use of field experiences and internships that blend theory with practice.

The department offers five areas of study for majors: athletic training, exercise science, outdoor education, sport studies, and physical education pedagogy. Students who wish to minor in kinesiology must complete 20 credits of coursework that have been approved by a department minor adviser. No more than six of the 20 credits may be earned through activity or coaching courses.

Students interested in majoring or minoring in kinesiology should consult with the specific program coordinator.

Athletic Training Major

An athletic trainer collaborates with physicians to optimize the activity and participation of patients and clients. Athletic training encompasses the prevention, diagnosis, first aid, and rehabilitation of emergency, acute, and chronic medical conditions. The Athletic Training Major has been accredited by the Commission on Accreditation of Athletic Training Education (CAATE) since 1991 and prepares professionals qualified to attend to the athlete, the fitness-conscious jogger, the skilled professional athlete, or anyone engaged in physical activity.

Students must earn a grade of C (2.0) or better in all KIN required courses and ZOOL 507-508.

Students gain clinical experience in University athletic training rooms and at off-campus clinical sites. Successful completion of the entire program, including supervised clinical experience, qualifies students to take the BOC certification exam. Students who wish to pursue both BOC certification and public school teacher certification also should see the pedagogy option. This double course of study will require between five and six years.

Students are admitted to the University in athletic training with conditional status. Specific competitive criteria must be met during the student's first year before he or she may apply for full-time status in the major, which is awarded only to students demonstrating exemplary performance in classes and directed observation. Detailed criteria may be found at www.chhs.unh.edu/kin_at/admission_at.html. Additionally, technical standards establish the qualities considered necessary for students to achieve the knowledge, skills, and competencies associated with the program. Candidates for full-time status will be required to verify they understand and meet these technical standards or that, with reasonable accommodation, they can meet them. Interested students should consult with program coordinator, Dan Sedory, regarding entry criteria and the technical standards.

Required Courses

Abbreviation	Course Number	Title	Credits
KIN	506	Concepts of Athletic Training	4
KIN	507	Concepts of Athletic Training Lab	1
KIN	585	Emergency First Responder	4
KIN	620	Physiology of Exercise	4

KIN	652	Clinical Kinesiology	3
KIN	653A	Musculoskeletal Assessment	2
KIN	658	Evaluation & Care of Athletic Training Injury I	4
KIN	658L	Evaluation/Care of Athletic Training Injury I Lab	1
KIN	659	Evaluation & Care of Athletic Training Injury II	4
KIN	659L	Evaluation/Care of Athletic Training Injury II Lab	1
KIN	660	Therapeutic Exercise in Athletic Training	4
KIN	661	Therapeutic Exercise Lab	1
KIN	662	Therapeutic Modalities in Athletic Training	4
KIN	663	Therapeutic Modalities Lab	1
KIN	665	Laboratory Practicum in Athletic Training	
	665A	Level I	2
	665B	Level II	2
	665C	Level III	2
	665D	Level IV	2
	665E	Level V	2
KIN	667	Pharmacology in Athletic Training	2
KIN	670	General Medical Conditions in Athletics	4
KIN	710	Organization/Admin of Athletic Training Programs	4
KIN	715	Seminar in Athletic Training	4
KIN	718	Career Preparation in Athletic Training	4
KIN	780	Psychological Factors in Sport	4

University Required Courses

Abbreviation	Course Number	Title	Credits
NUTR	400	Nutrition in Health and Well Being	4
PSYC	401	Introduction to Psychology	4
Statistics Course			4
ZOOL	507-508	Human Anatomy and Physiology	8

Exercise Science Option

This curriculum prepares individuals for career opportunities in health and fitness promotion

and education programs in hospitals, sports medicine centers, wellness clinics, universities, and rehabilitation facilities. Students are also prepared for advanced degree programs in the health professions, basic biology fields, medicine, or other health-related fields. Students must earn a grade of C (2.0) or better in every required course. All required courses must be completed before enrolling in KIN 650. Interested students should consult with the option coordinator, Timothy J. Quinn.

Required Courses

Abbreviation	Course Number	Title	Credits
KIN	585	Emergency First Responder	4
KIN	620	Physiology of Exercise	4
KIN	621	Exercise Laboratory Techniques	4
KIN	650	Exercise Science Internship	8
KIN	652	Clinical Kinesiology	4
KIN	653A	Musculoskeletal Assessment	2
KIN	704	Electrocardiography	4
KIN	705	Topics in Applied Physiology	4
KIN	720	Science & Practice of Strength Training	4
KIN	724	Metabolic Adaptations to Exercise	4
KIN	736	Fitness and Graded Exercise Testing	4
KIN	737	Exercise Prescription and Leadership	4
KIN	794	Cardiopulmonary Pathologies	4
KIN	795	Practicum in Cardiac Rehabilitation	2

University Required Courses

Abbreviation	Course Number	Title	Credits
NUTR	400	Nutrition in Health and Well Being	4
PSYC	401	Introduction to Psychology	4
ZOOL	507-508	Human Anatomy and Physiology	8
One course chosen from	SOC 502, PSYC 402, or HHS 540		4
CHEM	403-404	General Chemistry	8
CS	403	Online Network Applications	4

Outdoor Education Option

The outdoor education option is an accredited, award-winning, internationally recognized program preparing individuals for careers in outdoor education, adventure programming, wilderness therapy, and other educational/organizational settings. In addition to providing rich course content, this interdisciplinary program gives ample opportunity for practical application and field experience in the NH seacoast and White Mountain areas. Students must earn a grade of C (2.0) or better in every major course. In addition, they must complete 100 days of documented leadership experience prior to beginning a required internship. Interested students should contact the undergraduate curriculum coordinator, Laurie Gullion, e-mail

lgullion@unh.edu.

Required Courses

Abbreviation	Course Number	Title	Credits
KIN	540	Top Rope Rock Climbing	4
KIN	541	Management of Initiatives and Challenge Courses	4
KIN	543	Winter Adventure Programming	2
or			
KIN	548	Winter Expedition Programming	4
KIN	550	Outdoor Education Philosophy and Methods	4
KIN	551	Adventure Programming: Backcountry Based Exp.	3
KIN	552	Adventure Programming: Water Based Experiences	3
KIN	682	Outdoor Leadership	4
KIN	684	Emergency Medical Care: Principles/Practices	3
KIN	685	Emergency Medical Care: Principles/Practices Lab	2
KIN	686	Wilderness Emergency Medical Care	4
KIN	687	Leadership Practicum	4
KIN	786	Organization/Administration of Outdoor Education	4
KIN	787	Theory of Adventure Education	4
KIN	650	Internship*	(2-4) Cr/F

*Note: Proof of 100 days of leadership experience is required prior to taking this course.

University Required Courses

Abbreviation	Course Number	Title	Credits
ENGL	501, 502, or 503	Intro to Prose, Technical, or Persuasive Writing	4

Other: Core of courses (16 credits) emphasizing the particular area or population in outdoor education of interest to student, e.g., business, education, psychology—selected with assistance of an adviser.

Elective Courses (must successfully complete at least one)

Abbreviation	Course Number	Title	Credits
KIN	542	Sea Kayaking	2
KIN	545	High Angle Rescue	2
KIN	546	Whitewater Canoeing	3
KIN	547	Lead Rock Climbing	3
KIN	549	Wilderness Navigation	4
KIN	693C	Teaching Assistantship	2
KIN	782	Therapeutic Applications of Adventure Programming	4
KIN	798	Special Topics	Var.

Sport Studies Option

Sport studies is an interdisciplinary option in the Department of Kinesiology that provides a foundation for a variety of career paths in school and college athletics, including coaching, administration, marketing, and sports information. The major also prepares students for further graduate study in areas such as sport psychology. Some sport studies courses are appropriate for students with career interests in other industry segments (e.g., pro-sports, broadcasting), but those students must choose other majors (e.g., business or journalism). Majors take a core of foundation courses (e.g., The Sport Industry) as well as electives in applied areas such as sport marketing, athletic administration, and sport psychology. Majors must earn a grade of B- (2.67) or better in KIN 565 and KIN 580 and a grade of C (2.0) or better in each required University and KIN course. All majors must complete 20 credits of prior-approved coursework in supporting areas such as business, psychology, or education. In addition, an internship

experience or independent study is required. An internship experience is strongly recommended since it is often critical to career development. Interested students should consult with the option coordinator, Karen Collins.

Required Courses

Abbreviation	Course Number	Title	Credits
KIN	560	Sport Psychology	4
KIN	562	Sports Media Relations	4
KIN	565	Principles of Coaching	4
KIN	580	The Sport Industry	4
KIN	741	Social Issues in Contemporary Sports	4
KIN	761	Senior Seminar in Sport Studies*	4

*Majors must complete a minimum of 150 hours of industry experience before they can take KIN 761. See adviser for details.

Electives. Sixteen credits of approved KIN electives to include KIN 650 or KIN 696.

University Required Courses

Abbreviation	Course Number	Title	Credits
CS	401	Computer Applications	4
PSYC	401	Introduction to Psychology	4
One approved statistics course			4

Cognate Requirement (outside of Department of Kinesiology). Students must complete a minimum of 20 credits of coursework in other departments. Each course must be approved in advance by the faculty adviser.

Physical Education Pedagogy Option

Pedagogy is the art and science of teaching. This option integrates a general education background with the theoretical and process knowledge involved in teaching within movement-based elementary and secondary physical education programs. Extensive practicum experiences prepare students to teach preschool children, school-aged youth, and young adults, including students with developmental disabilities.

The physical education pedagogy option provides the foundation for public school teacher

certification through either the department's four-year certification program, or, if a student chooses to pursue a master's degree with certification, the Department of Education's Fifth-Year Program. All fifth-year candidates must meet the requirements for admission to graduate school (e.g., grade-point average of roughly 2.8 or above and 'minimum' scores on the Graduate Record Examination). Internal transfer candidates must have a minimum GPA of 2.67 and pass the Praxis I state licensure exam before admission to the option. All physical education pedagogy option students must receive a "C" grade (2.0) or better in all KIN required courses, including: KIN 655, Middle School and Secondary PE Pedagogy; KIN 666, Middle School and Secondary PE Practicum; KIN 610, Elementary PE Pedagogy; KIN 781, Inclusion in PE; and KIN 570, Elementary PE Practicum. Freshmen pedagogy majors are admitted with conditional status. In order to obtain full-time status in the option, majors must pass the Praxis I state licensure exam before classes begin in the fall of their sophomore year and maintain at least a 2.67 overall GPA at the start of their junior year. For questions about this program, contact the option coordinator, Steven Wright, at (603) 862-4408, or e-mail Steven.Wright@unh.edu.

Required Courses

Abbreviation	Course Number	Title	Credits
KIN	500	Historical/Contemporary Issues Physical Education	4
KIN	501	First Aid: Responding to Emergencies	2
KIN	570	Elementary Physical Education Practicum	4
KIN	600	Movement and Gymnastics Exploration	4
KIN	601	Lifetime Sports	3
KIN	603	Team Sports	3
KIN	610	Elementary Physical Education Pedagogy	4
KIN	620	Physiology of Exercise	4
KIN	648	Current Issues in Health	4
KIN	652	Clinical Kinesiology	4
KIN	653B	Biomechanical Analysis of Movement	2
KIN	655	Middle School/Secondary Physical Education	4
KIN	666	Middle/Secondary Physical Education Practicum	4
KIN	675	Motor Development and Learning	4
KIN	676	Adventure Activities	3
KIN	780	Psychological Factors in Sport	4

KIN	781	Inclusion in Physical Education	4
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Required Education Courses

Abbreviation	Course Number	Title	Credits
EDUC	700/800	Educational Structure and Change	4
EDUC	705/805	Alternative Perspectives/Nature of Education	4
KIN/EDUC	694	Courses in Supervised Student Teaching	8
or			
EDUC	900/901	Internship and Seminar in Teaching	12

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^ [back to top](#)

Nursing (NURS) ▼

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Chairperson: Lynette A. Hamlin

Associate Professor: Pamela P. DiNapoli, Susan J. Fetzer, Joan E Hahn, Lynette A. Hamlin, Gene E. Harkless, Carol L. Williams-Barnard

Assistant Professor: Catherine H. Bernosky deFlores, Paula L. McWilliam, Christine W. Saltzberg, Joanne Samuels, Gerard A. Tobin, Susanne M. Tracy

Clinical Assistant Professor: Sarah E. Belisle, Catherine Brown, Kimberly Carey, Denise A. Cole, Elizabeth J. Evans, Deborah Leveille, Christine McCarthy, Sandra Mote, Patricia Puccilli

Lecturer: Karen S. Niland

The nursing program is nationally accredited by the Commission on Collegiate Nursing Education, One Dupont Circle NW, Suite 530, Washington, DC 20036-1120. It reflects the mission and goals of the University and focuses on the uniqueness of each individual. The mission of the Department of Nursing is to enhance the health of individuals, families, groups, and communities. The philosophy expresses the beliefs of the faculty regarding person, environment, health, nursing, and education. Its goals are to help nursing students develop knowledge and skills essential to the present and future practice of nursing. Graduates of the program are prepared to provide care to individuals and groups, help people identify and meet their health care needs, be effective colleagues on the health care team, and shape the future of health care.

The curriculum is divided into biological, social sciences, and humanities as a foundation for courses in the major; and nursing courses, which emphasize caring, critical thinking, problem solving, decision making, and developing clinical skills. Clinical experiences are offered in area hospitals and in community health agencies. The senior year culminates in a practicum in which students apply curriculum concepts in a precepted clinical experience.

The faculty of the nursing program believe learning is a creative process wherein students are active participants in their education, growth, and development as professional nurses. Faculty members are facilitators and mentors to students within a supportive, scholarly environment.

Honors-in-major courses are offered to interested nursing students who have achieved a minimum cumulative grade-point average of 3.20 and 3.5 in the major.

The following prerequisite courses must be completed successfully prior to enrollment in NURS 500: ENGL 401; ZOOL 507-508; NUTR 400; and PSYC 401. MICR 501 must be taken prior to or concurrent with NURS 500. A course in statistics must be completed prior to, or taken concurrent with, NURS 641.

Prerequisite courses require grades of C or better and only one prerequisite course may be repeated one time in order to progress. Most of the prerequisite courses also meet general education requirements. A cumulative grade-point average of 2.50 must be maintained through the program. Major courses require a minimum grade of C. Nursing courses may not be repeated.

Students are responsible for their own transportation to clinical agencies, uniforms, professional equipment, health insurance coverage, criminal background checks, and selected immunizations. Additional costs associated with the program include laboratory fees each semester beginning in the sophomore year and fees associated with attendance at professional meetings. Students must be certified in cardiopulmonary resuscitation by July 1st of their sophomore year and re-certified as necessary until graduation. Students will be assessed a late fee if clinical documents are not received by the due date and will be dropped from the major if documentation is not received by the first day of class.

Freshman Year

Abbreviation	Course Number	Title	Fall	Spring
ZOOL	507-508	Human Anatomy and Physiology	4	4
NUTR	400	Nutrition in Health and Well Being	4	-
ENGL	401	First-Year Writing	4	-

PSYC	401	Introduction to Psychology	-	4
Electives (3)			4	8
Total			16	16

Sophomore Year

Abbreviation	Course Number	Title	Fall	Spring
MICR	501	Microbes in Health and Well-Being	4	-
NURS	500	Introduction to Professional Nursing	2	-
NURS	504	Diseases and Drugs 1	4	-
NURS	506	Lifespan Development, Interaction, and Learning fo	4	-
NURS	512	Introduction to Nursing Interventions	4	-
NURS	505	Diseases and Drugs 2	-	4
NURS	601	Function and Well-Being of Older Adults	-	4
One course in statistics*			-	4
Elective			-	4
Total			16	16

*HHS 540, PSYC 402, SOC 502

Junior Year

Abbreviation	Course Number	Title	Fall	Spring
NURS	611	Care of the Adult with Acute Illness 1	4	-
NURS	611C	Care of the Adult With Acute Illness 1 Clinical	2	-
NURS	621	Mat'l & Newborn Nurs. OR RCC: Living w/Mental Illn	4	-
NURS	626	Clinical Reasoning and Judgment 1	2	-
NURS	641	Translating Research for Practice	4	-
NURS	612	Care of the Adult with Acute Illness 2	-	4
NURS	612C	Care of the Adult with Acute Illness 2 Clinical	-	2
NURS	616	Mat'l & Newborn Nurs. OR RCC: Living	-	4

		w/Mental Illn		
NURS	627	Clinical Reasoning and Judgment 2	-	2
Elective			-	4
Total			16	16
Interim				
NURS	613C	Care of Adult w/ Acute Ill 3 Clin Concentration	2	

Senior Year

Abbreviation	Course Number	Title	Fall	Spring
NURS	702	Child Health Nursing	2	-
NURS	704	21st Century Public Health Nursing	4	-
NURS	704C	21st Century Public Health Nursing Clinical	4	-
		Elective	4	-
NURS	705	Contemporary Leadership within Health Care Systems	-	4
NURS	721	Integrating Professional Nursing Practice	-	8
		Elective	-	2-4
Total			14	14

R.N. Baccalaureate Program

Registered nurses with an unencumbered registered nurse license who meet University admission criteria may pursue, on a full- or part-time basis, a bachelor of science degree with a major in nursing. Major courses are offered at the Durham campus, the campus at UNH-Manchester, and on-line.

Curriculum requirements may be met through transfer credits, course enrollments, and challenge examinations.

The nursing component is based on the belief that R.N. students enter the program with knowledge and competence gained through previous educational and work experiences. This knowledge and competence can be demonstrated through completion of required baccalaureate-level nursing courses. Individualized plans of study are developed to enable completion of nursing content.

The R.N. student must earn a minimum of 128 credits and have a 2.5 cumulative grade-point average throughout their coursework. A minimum grade of C is required in each nursing course.

RN-BS Courses

Abbreviation	Course Number	Title	Credits
NURS	606	Seminar on Professional Nursing	7
NURS	617	Nursing and Healthcare Policy	3
NURS	622	Clinical Decision Making II	4
NURS	645	Research	4
NURS	655	Community Health Nursing I	3
NURS	656	Comm Hlth Nurs II: Indiv, Fam, & Aggregates	2
NURS	656C	Community Health Nursing II/Clinical	1
NURS	703	Nursing Leadership/Mgmt and Org Context	4
NURS	719	Professional Nursing Practice: Transitions	7

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^ [back to top](#)

Occupational Therapy (OT) ▼

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Chairperson: Shelley E. Mulligan

Associate Professor: Lou Ann Griswold, Shelley E. Mulligan, Barbara Prudhomme White

Assistant Professor: Sajay Arthanat, Douglas C. Simmons, Kerryellen Vroman

Clinical Assistant Professor: Susan C. Merrill, Elizabeth A. Stewart, Therese Willkomm

Occupational therapy enables people to participate in daily life activities including leisure, work, self-care, and home management. Occupational therapists work with people of all ages to gain or regain skills and abilities or adapt tasks within their natural environment. Occupational therapy education includes studies in liberal arts, biological, behavioral, and health sciences, and occupational science and occupational therapy.

The occupational therapy program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE). ACOTE is located at the American Occupational Therapy Association, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220, (301) 652-2682. Graduates from an accredited program are eligible to sit for the certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy, Inc. (NBCOT). After successful completion of this exam, the individual will be a registered occupational therapist (OTR). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT certification examination.

Combined Bachelor of Science/Master of Science Program

Graduates of professional programs must complete a professional master's degree in occupational therapy in order to enter the field. The University of New Hampshire Department of Occupational Therapy offers a combined bachelor's degree/master's degree program. Students may enter as first-year students or transfer into the B.S./M.S. program at the end of the sophomore year, space permitting in the program. Students interested in transferring into this program should contact the Department of Occupational Therapy for information about transfer requirements and application deadlines.

Pre-Professional Curriculum

Students begin the B.S./M.S. curriculum with three years of pre-professional courses, which include courses in biological and social sciences as well as occupational therapy. In addition to **University general education courses**, students take the following core courses during their first three years:

ENGL 401, First-Year Writing

PSYC 401, Introduction to Psychology

ZOOL 507 and 508, Human Anatomy and Physiology

Social Sciences: three courses in the social sciences, such as history, sociology, psychology, economics, anthropology

OT 500, The Behavior and Development of Children

OT 501, Development Tasks of Adulthood

OT 510, Exploring Occupational Therapy and Occupation

OT 610, Occupation, Identity, and Disability

OT 685, Psychosocial Disorders and Everyday Life

KIN 706 and 707, Neurology and Neurology Lab

Statistics

Additional requirements include:

An experiential learning course for four credits;
a health or social policy course;
a minor or self-designed concentration area that relates to health and human services for a total of 20 credits;
40 hours of volunteer or work experience in a health and human service organization are recommended.

Professional Curriculum

Students in the B.S./M.S. curriculum begin the professional program in the senior year and complete the following courses:

OT 741, Human Occupation

OT 751, Mind Body Systems Neurologically Based Function and Dysfunction

OT 752, Human Movement and Environmental Effects on Everyday Occupations

OT 760, Psychosocial Evaluation and Intervention (with co-requisite lab, OT 760L)

OT 762, Evaluation and Intervention for Children

OT 763, Evaluation and Intervention for Adults (with co-requisite lab, OT 764)

OT 771, Enabling Participation in Community Groups

OT 764, Transitions from Student to Professional

OT 792, Level I Fieldwork

At the end of this year, students are awarded a Bachelor of Science degree in occupational science. Students then apply to the Graduate School as advanced-standing students in the professional master's program. An overall minimum grade point of 3.0 is required for admission to the master's degree program. Please refer to the Graduate Catalog for additional information about the master's program and the fifth year of the occupational therapy curriculum, including fieldwork requirements.

Students have 5.5 academic years (11 semesters) to complete the professional curriculum, including level II field work. They then will be eligible to sit for the certification examination administered by the National Board of Certification of Occupational Therapists (NBCOT). Consistent with NBCOT, students must sit for the certification examination within two years of completion of coursework and fieldwork. A felony conviction may affect a graduate's ability to sit for the NBCOT certification examination and/or obtain state licensure.

Students are responsible for transportation to off-campus practicum and fieldwork locations and must purchase personal liability insurance for coverage for the practical components of the curriculum.

Curriculum review and revision is undertaken annually. Modifications to the schedule of coursework, and required coursework are scheduled to begin for students entering the professional program (senior year) in 2010. Detailed information about these proposed changes is available from The Department of Occupational Therapy. The department works closely with students during academic advising sessions and shares information about policy and requirement changes during registration periods as well as throughout the academic year. Students also are expected to take an active role in verifying expectations and should check with their department advisers each September for updated policies and requirements. Program requirements and policies for retention in the major are in the *OT Department Policy and Procedure Manual*, which is available on Blackboard. Students are expected to ensure they have updated information on the department's current policies and procedures.

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^ [back to top](#)

Recreation Management and Policy (RMP) ▼

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Chairperson: Janet R. Sable

Professor: Janet R. Sable

Associate Professor: Ann L. Morgan

Assistant Professor: Heather E. Bowen, Joshua Carroll, Chris Harrist, Allison Wilder

Affiliate Assistant Professor: James Hilton, Cari A. Moorhead

Clinical Assistant Professor: Patricia J. Craig, Jill Gravink

Clinical Instructor: Tom Carr, David Lee

As the fabric of life in contemporary society grows in complexity, people are increasingly turning to leisure and recreation services to find meaning, renewal, and enrichment. Recreation services can improve the public health, develop a sense of community, and enhance the quality of life of all citizens. Recreation professionals work in diverse settings, including human services, health care, natural recreation resource areas such as parks, and commercial recreation businesses. Graduates are employed in a broad range of settings, such as community recreation agencies, resorts, conference centers, youth services agencies, hospitals, rehabilitation centers, and long-term care facilities. Population and economic projections suggest that recreation service industries will continue to expand and thereby

continue to provide numerous professional career opportunities. The Department of Recreation Management and Policy is nationally accredited by the National Recreation and Parks Association/American Association of Leisure and Recreation. The department's curriculum supports a broad-based liberal education and an opportunity to acquire specialized professional knowledge and skills.

Curriculum Structure

Students entering the major may choose either an option in program administration, which includes the professional core and required courses related to program administration, or a specialized option in therapeutic recreation, which includes the professional core and required courses in therapeutic recreation.

International Study in Recreation and Leisure

A semester abroad sponsored by the American Universities International Program is available to students pursuing a degree in recreation management and policy. Programs in Scotland, Australia, New Zealand, South Africa, or Belize provide discipline-related exchange opportunities. Approval by the curriculum director is required approximately one year before departure. Eleven transfer credits can be granted. Other destinations can be negotiated through the [Center for International Education](#) on campus.

Core Courses

All majors must complete a core curriculum of nine courses: RMP 490, Recreation and Leisure in Society; RMP 501, Recreation Services for Individuals with Disabilities; RMP 557, Recreation Services Program Design and Planning; RMP 563, Recreation Management and Policy Practicum; RMP 654, Professional Development and Ethics; RMP 663, Management and Policy in Leisure Services; RMP 664 Professional Internship; RMP 724, Grantsmanship, Evaluation, and Research; and RMP 772, Law and Public Policy in Leisure Services.

A supervised internship (RMP 664) is required of all majors. The internship is designed to create a bridge between theory and practical application. Students working with their advisers and the internship coordinator select an appropriate setting based on their professional and career interests. They must complete a 14-16 week full-time internship under the supervision of a qualified professional. Specific requirements are identified in the Internship Manual available from the Department of Recreation Management and Policy.

Program Administration Option

This option prepares students for managerial positions in commercial, public, and nonprofit organizations that provide recreation and leisure services. Curriculum design emphasizes the effective and efficient planning, delivery, and evaluation of leisure-based programs, services,

and enterprises. Applied experience is a component of most courses, in addition to a required practicum and the 14–16 week full-time internship under professional supervision. Depending upon the RMP electives and the career support emphasis or minor chosen, students may expect to find employment in a broad range of settings. Recent graduates have found employment in the areas of conference and event planning, municipal park and recreation services, recreational sports, commercial/entrepreneurial recreation businesses, youth serving agencies, resorts, and natural resource management positions in state and federal agencies.

In addition to the required core courses, students who pursue the program administration option must complete the following departmental requirements: RMP 558, Program Supervision and Leadership; RMP 665, Applied Marketing and Communication in Recreation Services; RMP 770, Management and Design of Recreation and Park Facilities; two RMP course electives; CS 401, Computer Applications, or an approved equivalent; SOC 502 or other descriptive statistics; PSYC 401, Introduction to Psychology; FS 525, Human Development; or SW 550. Program administration students must complete a minor or emphasis area of 18–20 credits to support their specific career goals.

Therapeutic Recreation Option

Therapeutic recreation utilizes recreation to help people with disabilities or illnesses to develop and use their leisure in ways that enhance health, independence, and well-being. Therapeutic recreation recognizes the importance of quality of life and uses activities to remediate or rehabilitate functional abilities. Therapeutic recreation services are provided in a variety of settings, including hospitals, long-term care facilities, residential treatment facilities, schools, home health care, community recreation, correctional facilities, rehabilitation centers, camp and outdoor education centers, and adult day programs. Observation and applied experience is a component of several courses. Students complete a 14-16-week full-time clinical internship under the supervision of a certified therapeutic recreation specialist (CTRS). Students must purchase professional liability insurance for coverage for the clinical components of the curriculum. The Bureau of Labor Statistics reports that therapeutic recreation is one of the fourteen fastest growing occupations in the country. The occupational outlook statistics reflect a “39 percent increase in demand for recreational therapists with strong clinical backgrounds” for the beginning of the 21st century. Upon successful completion of this option, students are prepared to meet sitting requirements for the National Council for Therapeutic Recreation Certification Examination and are eligible for licensure in the state of New Hampshire.

In addition to the required core courses, students who choose this option must complete the following departmental requirements: RMP 502, Foundations of Therapeutic Recreation; RMP 503, Therapeutic Recreation Rehabilitation Principles and Interventions; RMP 504, Therapeutic Recreation Mental Health Principles and Interventions; RMP 603, Assessment and Treatment

Planning in Therapeutic Recreation; RMP 602, Clinical Treatment Lab I; RMP 604, Therapeutic Communication and Facilitation Techniques in Therapeutic Recreation; RMP 605, Clinical Treatment Lab II; CS 401, Computer Applications or approved equivalent; HHS 540, Statistics, or equivalent; PSYC 401, Introduction to Psychology; PSYC 561, Abnormal Behavior; FS 525, Human Development; ZOOL 507-508, Human Anatomy and Physiology; KIN 652, Clinical Kinesiology, and KIN 653A, Musculoskeletal Assessment.

Criteria for Admission and Retention

Internal transfer students interested in applying to the major must meet with an RMP faculty member prior to receiving an application for admission to the major. Transfer applications are accepted throughout the year; however, priority is given to applications received by October 15 for spring and March 15 for fall. Applications can be obtained from the Department of Recreation Management and Policy. Students within the major are required to maintain a minimum 2.5 semester grade-point average every semester to retain good academic standing within the major. In addition, student majors must obtain a grade of C (2.0) or better in RMP courses and a grade of C- (1.67) or better in all other courses specifically required by the department.

Child Life Minor

This interdisciplinary minor is offered to a limited number of students by the therapeutic recreation option in the Department of Recreation Management and Policy and the Department of Family Studies. Upon completion of course requirements, students will be able to sit for the Child Life Specialist exam. All students complete two core courses: RMP 502 and FS 525. Therapeutic Recreation students will select two courses from the following: RMP 593, FS 623, FS 635, FS 641, FS 709, FS 734, and FS 772. Students will complete an internship that will entail a minimum of 480 hours of experience and be supervised by a certified Child Life Specialist. Therapeutic recreation majors will be assigned a minor adviser from family studies.

» [Click to view course offerings](#)

^ [back to top](#)

Social Work (SW) ▼

» <http://www.chhs.unh.edu/sw/>

» [Click to view course offerings](#)

Chairperson: Jerry D. Marx

Associate Professor: Mary Banach, Linda Rene Bergeron, Cynthia Anne Broussard, Robert E. Jolley, Jerry D. Marx, Sharyn J. Zunz

Assistant Professor: Pablo Arriazi, Vernon Brooks Carter, Susan A. Lord, Sharon B. Murphy, Karen R. Oil, Martha H. Ortmann, Patrick Shannon, Anita Tucker, Melissa Wells

Clinical Assistant Professor: Martha A. Byam, Kim Kelsey, Lee P. Rush

The Department of Social Work's undergraduate program offers both a major and a minor in social work. It is a specialized degree that prepares graduates for generalist social work practice with a solid foundation in the liberal arts and in the knowledge, skills, and value base of social work. Through the mastery of core competencies, social work graduates apply their education working with individuals, families, groups, organizations, and communities. In addition, the program prepares qualified students to pursue graduate education in schools of social work and other human services fields.

The baccalaureate program at the University of New Hampshire is accredited by the Council on Social Work Education (CSWE) and must meet rigorous academic standards to retain this accreditation. Social work majors pursue a program that encompasses the professional social work foundation of social welfare policy and services, social work practice, human behavior in the social environment, and research. Course content includes theories and practice models that inform intervention, values and ethics, human rights, and social and economic justice.

To connect the theoretical and conceptual contribution of the classroom with the practice world, students complete an introductory-year, 20-hour service learning experience as well as a 450-hour social work internship over two semesters during the senior year. The senior field placement in the final year of the baccalaureate program is arranged between the student and the field education coordinator. Evaluation of this senior field placement is one tool that measures student achievement of program competencies. Students are required to pay a liability insurance fee for their off-campus field education experience. In compliance with CSWE accreditation standards, the B.S. in social work program does not grant social work course credits for life experience or work experience.

Social work majors earn a B.S. degree in social work. Graduates are eligible for practice in a variety of social work settings throughout the United States. In addition, qualified graduates may be eligible for advanced standing in M.S.W. programs that offer advanced standing.

Academic Program

Social work majors are required to take SW 424, 525, 550, 551, 601, 622, 623, 625, 640, 640A, 641, 641A. In addition, students are expected to successfully complete four courses taken from the disciplines of anthropology/sociology, zoology, philosophy, and psychology. Many of these

also may fulfill general education requirements. Students wishing to minor in social work are required to take SW 424, SW 525, and any three other courses offered by the department, excluding SW 640, 641. Students interested in either a major or minor in social work should consult with the undergraduate program coordinator, Martha Byam, Pettee Hall, Room 231, (603) 862-1077.

» [Click to view course offerings](#)

^ [back to top](#)

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College of Liberal Arts

[Introduction](#)
[Degrees](#)
[Interdisciplinary Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Liberal Arts ▼

» <http://www.unh.edu/liberal-arts/>

Interim Dean: Kenneth Fuld

Associate Dean: John T. Kirkpatrick

Senior Faculty Fellow: Peggy A. Vagts

Introduction ▼

It is the purpose of the College of Liberal Arts, as a center of learning and scholarship, to help students achieve an understanding of the heritage of civilization and to educate them in the tradition of the past and realities of the present so they may recognize and act upon their obligations to the future.

The college seeks to meet the educational needs of each student through the development of interests and skills, which, combined with the individual's potential, make possible a richer, more useful life.

Combined Programs of Study

In addition to pursuing a single major, students may combine programs of study as follows:

Minors: See [University Academic Requirements](#), [Liberal Arts Interdisciplinary Programs](#), and [University Interdisciplinary Minors](#).

Second majors: See [University Academic Requirements](#).

Dual-degree programs: See [University Academic Requirements](#).

Student-designed majors: See [Special University Programs](#).

Other combined programs and interdisciplinary opportunities: See [Special University Programs](#).

Research Centers ▼

Carsey Institute

www.carseyinstitute.unh.edu

The Carsey Institute conducts policy research on vulnerable children, youth, and families and on sustainable community development. Carsey gives policy makers and practitioners the timely, independent resources they need to effect change in their communities.

At UNH, Carsey provides resources and programs to support faculty development for research in the social sciences and health fields, and also provides opportunities for undergraduate and graduate students to participate in interdisciplinary policy research and to engage directly in programs working with families and communities as well as sustainable community development. Under the auspices of both the College of Liberal Arts and the College of Health and Human Services, currently the institute works with advisors from 14 different campus departments and organizations, and supports 9 campus centers where research is conducted on justice studies, crimes against children, child development, disability, community health, and adolescents. The institute, located in Huddleston Hall, was established in 2002 through a generous gift from UNH alumna and noted television producer Marcy Carsey. Cynthia "Mil" Duncan, professor of sociology, is the founding director of the Institute.

Center for the Humanities

www.unh.edu/humanities-center

The Center for the Humanities fosters excellence in the humanities, broadly conceived, at the University of New Hampshire. Center resources and programs support faculty research, encourage reflection and inquiry across the university community and beyond, create interdisciplinary initiatives in many forms, and undertake special projects to raise the visibility of the humanities. To accomplish this, the center endeavors to support the highest-quality work by UNH humanities faculty, to build productive collaboration among faculty, to create singular projects that advance its goals, and to be a center of innovation, planning, and inspiration for the humanities at the University of New Hampshire. By pursuing its goals, the center supports the University's research mission in particular, as well as its academic plan.

The Center for New England Culture is a unit of the Center for the Humanities, as are three interdisciplinary minors—Africana and African American Studies; American Studies; and Race, Culture, and Power. The Center for the Humanities is directed by Burt Feintuch, Professor of Folklore and English.

Crimes Against Children Research Center

www.unh.edu/ccrc

The Crimes Against Children Research Center (CCRC) is concerned with all forms of crimes against children and adolescents, from birth through age 17, both within and outside the family, both known and unknown to law enforcement. These include criminal acts as defined by law, such as sexual assault, abduction, theft, robbery, and aggravated assault against children. But it also includes child abuse in all its forms—physical, sexual, emotional—and child neglect, as well as child-to-child violence, such as peer and sibling assaults and bullying. It also includes indirect victimization, where children witness or are affected by the crime victimization of a family member or friend.

The CCRC, created in 1998, grew out of and expands upon the work of the UNH Family Research Laboratory, which has been devoted to the study of family violence and related topics since 1975. Associated with the Center is an internationally recognized group of experts who have published numerous books and articles concerning the incidence and impact of violence against children.

CCRC staff have contributed to many pioneering national crime studies, including: National Incidence Study of Missing, Abducted, Runaway, and Thrownaway Children; National Family Violence Survey; National Youth Victimization Prevention Survey; National Survey of Sexual Abuse in Day Care; Developmental Victimization Survey; Youth Internet Safety Surveys; and Multi-Site Evaluation of Children's Advocacy Centers.

The CCRC is directed by David Finkelhor, who is also the co-director of the Family Research Laboratory and professor of sociology at the University of New Hampshire. Finkelhor has been researching criminal violence against children since 1978 and is the author and editor of 12 books and more than 100 articles on the subject.

Family Research Laboratory

www.unh.edu/fri

Since 1975, the Family Research Laboratory (FRL) has devoted itself primarily to understanding family violence and the impact of violence in families. As public and professional interest in family violence has grown, so has the need for more reliable knowledge. The FRL seeks to fill that need through comprehensive literature reviews, new theories, and methodologically sound studies. Researchers at the FRL pioneered many of the techniques that have enabled social scientists to estimate directly the scope of family violence. These efforts have brought international recognition to the FRL.

The FRL is unusual among research centers in the field because it addresses all aspects of the family, violence, and abuse. Topics undertaken by the FRL include physical abuse of children, corporal punishment of children, sexual abuse of children, physical abuse of spouses, dating

violence, abuse of the elderly, intra-family homicide, rape and marital rape, violence between siblings, peer victimization of children, pornography, and missing and abducted children. This variety of topics is a result of beliefs that have guided FRL research: that various forms of family problems are interrelated, that conflict is as basic to family life as are love and cooperation, and that much of the conflict and violence in the world outside the family can be traced to roots within the family. This holistic view of family violence has contributed both diversity and richness to the FRL's work.

The FRL's prominence in the field is in part a result of the large number, variety, and scope of its publications. In a span of 10 years, FRL staff members have published more than 45 books and more than 740 articles on family violence. A complete list of program publications is updated regularly and available from the [FRL Web site](http://www.unh.edu/fri) at www.unh.edu/fri.

The FRL is housed in a suite of offices in the Horton Social Science Center and contains a library of 3,000 books. The FRL is co-directed by David Finkelhor, professor of sociology and director of the Crimes against Children Research Center; and Murray A. Straus, professor of sociology.

Justiceworks

www.justiceworks.unh.edu

Justiceworks is a research and development group in justice studies. Founded in 1999 as a collaborative consortium of academics and professionals, Justiceworks offers an array of balanced, non-partisan services addressing issues in crime, safety, security, and the administration of justice. Within Justiceworks, the Technical Analysis Group (TAG) delivers research products that identify and address critical federal, state, and local law enforcement needs. TAG develops and coordinates law enforcement partnerships, alliances, and relationships nationally in support of the core mission of Justiceworks at the University of New Hampshire.

Justiceworks is co-directed by John T. Kirkpatrick, associate dean of the College of Liberal Arts and clinical professor of sociology; and Charles Putnam, research associate professor of political science.

Prevention Innovations

www.unh.edu/preventioninnovations

Prevention Innovations is a fee-for-service consulting, training, and research unit that develops, implements, and evaluates cutting-edge programs, policies, and practices that will end violence

against women on campus. Prevention Innovations provides community assessments and evaluation research to understand current needs and existing gaps; provides consultations and trainings to improve the implementation of programs, policies, and practices; develops evidence-based prevention materials; builds upon original community-based research to ensure effective results; designs innovative practices and facilitates collaborative regional networks of researchers and practitioners; assembles and maintains a team of accomplished and innovative researchers in the field of campus violence prevention; and adds to scholarship on the causes and prevention of interpersonal violence with a specific focus on college campus communities.

Prevention Innovations is co-directed by Vicki Banyard, Professor of Psychology, and Sharyn Potter, Associate Professor of Sociology. Other team and affiliate members include UNH faculty and staff as well as professionals working in the fields of campus violence prevention, research, and evaluation in the New England region.

Proficiency in a Foreign Language ▼

Please see the explication of this University requirement under [Degree Requirements: Bachelor of Arts](#).

Within the College of Liberal Arts, only those students majoring in linguistics, psychology, or theatre and dance may use American Sign Language (ASL) to fulfill their foreign language proficiency requirement. English teaching majors who plan to pursue deaf studies may petition the English department to use ASL to fulfill their foreign language proficiency requirement.

Liberal Arts Study Abroad ▼

The College of Liberal Arts offers eight managed study abroad programs that are administered by college faculty and staff. These programs provide opportunities for liberal arts students as well as students in programs throughout the University to experience and learn about different cultures and, in non-English-speaking countries, to increase proficiency in a foreign language.

Because the college administers these programs, registration, finances, and other logistics are streamlined and simple. Students are eligible for federal financial aid, and pay UNH tuition and a single program fee, which covers room, board, and excursions. Most UNH student fees are waived. Students are guaranteed a full semester of credits (16) in the semester-long programs.

Please see the list of eligibility requirements under [Study Abroad Programs](#).

To learn more, contact:

London, England: Fall and/or spring courses in the liberal arts at Regent's College, London.

Contact: London.Program@unh.edu, (603) 862-3962, 53 Hamilton Smith Hall

Cambridge, England: Summer courses in history, literature, and humanities at Gonville and Caius College, Cambridge University.

Contact: cambridge.program@unh.edu, (603) 862-3962, 53 Hamilton Smith Hall

Brest, France: Summer intensive language study at the Centre International d'Etudes des Langues.

Contact: Brest.program@unh.edu, (603) 862-3856, 210J Murkland Hall

Dijon, France: Students study French language and other liberal arts courses at the Université de Bourgogne, Dijon.

Contact: Dijon.program@unh.edu, (603) 862-1303, 210E Murkland Hall

Budapest, Hungary: Each fall, UNH students under the supervision of a UNH Justice Studies faculty member will study in residence at Corvinus University.

Contact: justice.studies@unh.edu, (603) 862-1716, 202 Huddleston Hall

Ascoli Piceno, Italy: Summer, semester, or full-year study in the humanities and social sciences at the UNH-in-Italy campus. Internships and courses at the Università degli Studi da Ascoli Piceno are also available.

Contact: Piero.Garofalo@unh.edu, (603) 862-4005

Puebla, Mexico: Summer courses in intensive Spanish and culture.

Contact: Lina.Lee@unh.edu, 210A Murkland Hall

Granada, Spain: Semester or full-year study in Spanish and other disciplines at the Centro de Lenguas Modernas of the University of Granada.

Contact: John.Chaston@unh.edu, 317 Murkland Hall

Museum of Art ▼

<http://www.unh.edu/moa>

Housed in the College of Liberal Arts, the Museum of Art serves as the New Hampshire Seacoast's premier public art museum, a venue for UNH students and faculty to exhibit and discuss their work, and a resource for the visual arts for the University community. Visitors gather to enjoy changing University, national, and international exhibitions; music; lectures; poetry readings; and receptions. The museum's permanent collection includes more than 1,500 historical and modern works by American and European artists. Located in Paul Creative Arts Center, the museum is open to students, faculty, museum members, and the general public

free of charge. For more information, call (603) 862-3712 or email Museum.of.Art@unh.edu.

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UNH Search:





College of Liberal Arts

Introduction

Degrees

- Bachelor of Arts
- Bachelor of Fine Arts
- Bachelor of Music

Interdisciplinary Programs

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Liberal Arts ▼

» <http://www.unh.edu/liberal-arts/>

Bachelor of Arts ▼

These programs primarily provide a broad liberal education along with a major in one of the fields listed on this page. Requirements for the bachelor of arts degree and information regarding these majors are presented under [Degree Requirements](#) and [Programs of Study](#).

[Anthropology](#)

[Art History](#)

[Art Studio](#)

[Classics](#)

[Communication](#)

[English](#)

[English/Journalism](#)

[English Literature](#)

[English Teaching](#)

[European Cultural Studies](#)

[French](#)

[French Studies](#)

[Geography](#)

[German](#)

[Greek](#)

[History](#)

[Humanities](#)

[International Affairs Dual Major](#)

[Justice Studies Dual Major](#)

[Latin](#)

[Linguistics](#)

[Music](#)

[Music History](#)

Music Theory
Performance Study
Music Preteaching

Philosophy

Political Science

Psychology

Russian

Sociology

Spanish

Theatre

Dance

Women's Studies

Bachelor of Fine Arts ▼

This curriculum provides training for students who plan to enter a professional graduate school. Requirements for the bachelor of fine arts degree are outlined under [Art and Art History](#).

Bachelor of Music ▼

This curriculum provides professional training in performance, in musical theory, and in music education, and it allows students to develop their talent to a standard equivalent to the one achieved at conservatories of music. Requirements for the bachelor of music degree and information regarding the curriculum are presented in [Programs of Study/Music](#).

Degrees include Music Education, Performance, and Theory.

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College of Liberal Arts

Introduction

Degrees

Interdisciplinary Programs

- Africana and African American Studies Minor
- American Studies
- Asian Studies Minor
- Cinema Studies Minor
- European Cultural Studies Minor
- History and Philosophy of Science Minor
- Humanities Minor
- Justice Studies Minor
- Latin American Studies Minor
- Linguistics and TESOL Minors
- Queer Studies Minor
- Religious Studies Minor
- Women's Studies Minor

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Liberal Arts ▼

» <http://www.unh.edu/liberal-arts/>

Africana and African American Studies Minor ▼

<http://www.unh.edu/afamstudies/>

The Africana and African American studies minor provides students with an interdisciplinary approach to central issues in African, African Diaspora, Caribbean, and African American history, literature, and culture. The minor permits students to concentrate in one of these areas or to combine courses from among the many offerings to create a distinctive program.

The Africana and African American studies minor encompasses the multidisciplinary and comparative study of African history and culture, and the study of the African Diaspora throughout the world, from Europe to Asia as well as to North and South America. The program recognizes the global and transnational dimensions of contemporary African Diasporic experiences in the United States, the Caribbean, and in Latin American nations. It thus offers a wide variety of courses that are taught across several disciplines in the University. Students are strongly encouraged to select courses reflecting the breadth of offerings in the minor across the University of New Hampshire's undergraduate curriculum.

The program presents strong offerings in Africana studies because an understanding of Africa is central to the study of the African Diaspora. The program also features many courses in African American studies because many aspects of African American history and culture have been central to the development of the United States, highlighting both the nation's problems and its promise, and affecting virtually all areas of academic study through the years, from the humanities and social sciences to the physical sciences. Students are encouraged to take courses from a variety of departments and disciplines. The minor therefore is designed to serve the needs of all students, regardless of their ethnic or cultural background, complementing their work in their major fields of study while serving also as a focused corrective to traditionally marginalized approaches to Africana, African Diasporic, Caribbean, and African American experiences.

Africana and African American studies consists of five 4-credit courses, including one course from a list of introductory courses related to the student's choice of concentration and four other

approved offerings. Students must take at least one course at the 600 or 700 level. The required introductory course provides students with a general understanding of the broad and diverse spectrum of Africana and African American subjects. Electives enable students to develop their understanding in more focused courses (listed below) in various fields of study. Students must earn a C- or better in each course, and maintain a 2.0 grade-point average in courses taken for the minor. Electives may include special topics courses, as approved by the minor coordinator, a senior seminar, internship, or study abroad credits.

Students interested in minoring in Africana and African American studies should contact the minors coordinator, Cait Vaughan, 322 Huddleston Hall, (603) 862-2179, e-mail cait.vaughan@unh.edu.

Introductory Courses (one of the following)

ANTH 500D, Peoples and Cultures of Sub-Saharan Africa
 ENGL 517/AMST 502, Introduction to African American Literature and Culture
 ENGL 609, Ethnicity in America: The African American Experience in the 20th Century
 INCO 450, Introduction to Race, Culture, and Power
 HIST 505 or 506, African American History
 HIST 531, Introduction to Latin America & the Caribbean
 HIST 587/588, History of Africa
 HIST 444D, Slavery and Society in Pre-Colonial Africa

Elective Courses

Electives are approved for the minor and announced each semester in the [Time and Room Schedule](#) and on the African American studies Web site, www.unh.edu/afamstudies. Courses that are partly devoted to the concerns of Africana and African American studies may count for the minor, if the instructor will allow the students to focus a significant amount of coursework on this field of study. Approval by both the minor coordinator and the course instructor is required for such courses.

Pre-approved Electives

ANTH 500B, Peoples and Cultures of South America
 ANTH 500D, Peoples and Cultures of Sub-Saharan Africa
 ANTH 627, Urbanization in Africa
 ANTH 686, Gender, Sexuality, and HIV/AIDS in Sub-Saharan Africa
 ANTH 760, Race in Global Perspectives
 ARTS 671, Egypt and Nubia: Art, Architecture, and Rediscovery
 CMN 632, Communication Theory
 EDUC 797/ANTH 790, Seminar: Teaching Race
 ENGL 581/581H, Introduction to Post-Colonial Literature in English

ENGL 609, Ethnicity in America: The African American Experience in the 20th Century
ENGL 681, Introduction to African Literatures in English
FREN 526, Introduction to Francophone Cultures
FREN 676, Topics in Francophone Cultures
FS 757/851, Race, Class, Gender, and Families
HIST 444D, Slavery and Society in Pre-Colonial Africa
HIST 497, The Civil Rights Movement
HIST 531, Introduction to Latin America and the Caribbean
HIST 587/588, History of Africa
HIST 589, Islam in Africa
HIST 600.02, Race, Gender, Science and African-American Experience
HIST 611, History of the Civil War Era
HIST 625, Southern History and Literature Since the Civil War
HIST 684, History of Southern Africa Since 1652
HIST 688, African Religions
HUMA 592, Topic: The Blues
HUMA 609, Ethnicity in America: The Black Experience in the 20th Century
MUSI 460, Jazz Band
PHIL 540, Philosophy of Race and Racism
POLT 519, Civil Rights and Liberties
PSYC 791A02, Psychology of Race
SOC 530/530W, Race and Ethnic Relations
SOC 745, Race, Ethnicity, and Inequality
WS 401.06, Intro to Women's Studies
WS 595, Black Women in America

American Studies ▼

<http://www.unh.edu/amstudies>

American studies is the interdisciplinary study of United States culture in all its varied aspects. Students learn to connect history, art, politics, religion, popular culture, literature, and other features of American life and to examine both the differences and the similarities among, for example, different racial and ethnic groups, historical periods, and media. This intercollege minor draws courses from 15 departments, courses emphasizing the interrelationship among current methodologies, thought, and scholarship concerning the study of American culture and society. The program encourages students to take advantage of the rich resources of the New England region through internships and independent studies at local museums, libraries, historical societies, and other institutions dedicated to the study and preservation of American culture. Students also can participate in exchange programs at universities with other regional

or ethnic studies programs. Independent study, field work projects, and exchanges must be approved by the faculty member supervising the work and by the coordinator of the American studies minor.

The American studies minor consists of five courses. Students must take American Studies 501 as early in their careers as possible. In addition, students must take at least one other American studies course (preferably more), and at least one course concentrating on issues of race, gender, or ethnicity in America (starred [*] courses). No more than two courses of the five may be at the 500 level (departmental prerequisites may be waived for American studies students at the discretion of the instructor). Students must earn a C- or better in each course and maintain a 2.0 grade-point average in courses taken for the minor.

Because of the range and breadth of possible American studies concentrations, students are urged to see the coordinator and fill out an intent to minor form as soon as they become interested in the minor, preferably by the beginning of their junior year. Students may wish to focus their coursework in the minor around a coherent topic, either chronologically or thematically. Examples include but are not limited to: a specific historical period (for example, the twentieth century); race, ethnicity, gender, or class in America; popular culture; the arts; Native American studies; regional studies; urban, rural, and natural environments; American institutions (education, sports, religion, etc.). Students might also consider concentrating their major work in courses related to American Studies.

Students interested in minoring in American studies should contact the Associate Coordinator for Academic Minors, Cait Vaughan, The Center for the Humanities, 322 Huddleston Hall, (603) 862-2179, e-mail cait.vaughan@unh.edu.

Courses

AMST 444A, Portable, Exportable Nation

AMST 501, Introduction to American Studies, and one of the following:

AMST 502, Introduction to African American Literature and Culture*

AMST 503, Introduction to Native American Studies

AMST 603, Photography and American Culture

AMST 604, Landscape and American Culture

AMST 605, Film in American Culture

AMST 607, Religion in American Life and Thought

AMST 608, Women Artists and Writers, 1850-Present*

AMST 609, The African American Experience in the Twentieth Century*

AMST 610, New England Culture

AMST 611, Indigenous New England

AMST 612, Periods in American Culture

AMST 613, Regions in American Culture
AMST 614, Native American Studies Topics
AMST 615, Asian American Studies Topics
AMST 620, Internship
AMST 665, Applied American Environmental Philosophy
AMST 695/6, Special Topics in American Studies
AMST 697/8, Seminar in American Studies
AMST 750, Applied American Environmental Philosophy
AMST 795/6, Independent Study

*These courses concentrate on issues of race, gender, or ethnicity in America.

Elective Courses

Electives are approved for the minor and announced each semester in the [Time and Room Schedule](#) and on the [American studies Web site](#).

Asian Studies Minor ▼

<http://www.unh.edu/asian-studies>

To appreciate the Asian peoples—their languages, their history, their society, their political/economic systems—and the Asian experiences in the United States, the Asian studies minor is designed to be broadly inclusive. Students are required to choose five courses from a variety of Asian courses offered at UNH, no more than three of which can be from one individual discipline. Students are strongly encouraged to enroll in Asian languages classes at UNH as well as explore Asian courses at other U.S. and Asian institutions. For further information, please contact Lawrence C. Reardon, coordinator, Department of Political Science, 241A Horton Social Science Center, (603) 862-1858; e-mail chris.reardon@unh.edu.

ANTH 500E, People and Cultures of South Asia
ARTS 697, Arts of the Far East
CHIN 401/2, Elementary Chinese
CHIN 425, Introduction to Chinese Culture and Civilization
CHIN 503/4, Intermediate Chinese
CHIN 795/96, Independent Study in Chinese
CLAS 413/4, Elementary Sanskrit
ENGL 581, Introduction to Postcolonial Literatures in English
ENGL 616C, Asian Americans in Film/Asian American Film

ENGL 750, Special Topics in Literature: Asian American Literature

GEOG 541, Geography of Japan

HIST 425, Chinese Civilization

HIST 579, History of China in Modern Times

HIST 580, History of Japan in Modern Times

HIST 681, Modern China Topics

JPN 401/2, Elementary Japanese*

JPN 425, Introduction to Japanese Culture and Civilization

JPN 503/4, Intermediate Japanese*

JPN 631/2, Advanced Japanese

JPN 795/6, Independent Study in Japanese

PHIL 520, Introduction to Eastern Philosophy

POLT 545, People and Politics in Asia

POLT 546, Wealth and Politics in Asia

POLT 556, Politics in China

POLT 566, Foreign Policies in Asia and the Pacific

POLT 569, Chinese Foreign Policy

POLT 797, Seminar in Chinese Politics

*Japanese taught at UNH. Other Asian languages studied elsewhere may be substituted by approval.

Cinema Studies Minor ▼

<http://www.unh.edu/cinema-studies/minor.htm>

The minor in cinema studies offers a variety of opportunities to study a predominant contemporary form of narrative, aesthetic, and social discourse: the moving photographic image. Film is the primary medium of study for the minor, but the cinematic practices of video and television also may be included as potential areas of interest. Courses consist of interdisciplinary approaches to the analysis of cinema, covering works from the silent period to the present, from the U.S. and other nations, and from “mainstream” and “alternative” groups. Students learn the art, geography, history, technology, economics, and theory of cinema, while also learning the language for analyzing its forms and practices. The minor allows for organized and meaningful study of the moving photographic image, from a wide range of scholarly interests and approaches that complement the increasingly significant place of cinema in many major disciplines and other programs. Students in this program become keenly aware of themselves as members of a culture of the moving photographic image.

Cinema studies students are required to take five courses. Students must earn at least a C- in

each course and maintain a 2.0 grade-point average in courses taken for the minor. "Double counting" of minor course credits with major course credits will be left to the discretion of existing major departments, with the exception that no more than eight credits, if approved, will "double count." Courses in cinema studies should be taken in the following sequence: first, one introductory course, ENGL 533, or CMN 550, followed by one history or theory of film course, LLC 540 or ENGL 618, followed by at least two of the more advanced and/or focused courses, and one of the elective courses.

Interested students should contact the Cinema minor coordinator, Delia Konzett, Department of English, delia.konzett@unh.edu, (603) 862-0259.

Introductory Course (one required)

ENGL 533, Introduction to Film Studies

CMN 550, Cinema and Society

History and Theory of Film (one required)

LLC 540, History of Film

ENGL 618, Film Theory

Advanced and/or Focused Courses (two required)

CMN 650, Critical Perspectives on Film

ENGL 616 A, Studies in Film: Genre

ENGL 616 B, Studies in Film: Authorship

ENGL 616 C, Studies in Film: Culture and Ideology

ENGL 616 D, Studies in Film: Narrative and Style

ENGL 733, Special Studies in Film

GERM 523, Women and German Film

GERM 524, Special Topics in German Film

ITAL 525, Italian Cinema

LLC 440, Cultural Approaches to Film and Fascism

RUSS 426, Film and Communism

SOC 670, Sociology and Nonfiction Film

Elective Courses (one required)

Electives are drawn from an approved list of courses for the minor, which is compiled and announced every semester. Students also may choose from the advanced and/or focused courses. Elective courses have a significant cinema studies component and may have another disciplinary focus as well. Contributing departments and/or programs include: American studies, anthropology, arts, communication, English, French, geography, German, history,

humanities, Italian, music, philosophy, political science, psychology, Russian, sociology, Spanish, theatre and dance, and women's studies. Students should check with the cinema minor coordinator each semester for approval of the elective.

European Cultural Studies Minor ▼

<http://www.unh.edu/ecs/>

European cultural studies is an interdisciplinary minor (interdisciplinary major also available) in which students study the field of cultural analysis through an individually designed focus on a European topic. The ECS major and minor are driven in part by the belief that language is an integral part of culture and not merely a tool for the study of its literature. By the same token, the study of European history, philosophy, politics, and so forth can only be enriched by the addition of critical perspectives developed in language and literature study.

The minor in ECS consists of 20 credits: ECS 500, 504 level in a European language, two foundation courses (see below), and one elective.

Foundation Courses

The foundation requirement is designed to give students an introduction to European languages; European social and political institutions; and the European arts and humanities. Each student must take two such courses (eight credits).

1. Languages

504 or equivalent (intermediate level) in a European language, or an approved alternative

2. Arts / Humanities or Social Sciences (one course from the following):

ARTS 580 or 581, Survey of Art History

ENGL 651 or 652, Comparative Literatures when inclusive of European literatures

HUMA 501, 502, 503 (when focused on European topics)

MUSI 402, Survey of Music History

ECON 630, Comparative Study of Economic Systems

HIST 435 or 436, Western Civilization

HIST 565, Women in European History

HIST 650, European Socialism

HIST 656, 20th Century Europe

POLT 550, Major Foreign Governments

POLT 552, Contemporary European Politics

For more information on the ECS minor, contact Carmen Rasilla, Department of Languages, Literatures, and Cultures, Murkland G10D, (603) 862-3126, crasilla@cisunix.unh.edu.

History and Philosophy of Science Minor ▼

<http://www.unh.edu/colaminors/hps>

What is science? When people ponder this question, they often are led to seek answers outside the sciences themselves. This interdisciplinary minor helps students address historical and philosophical questions about science. The history of science asks, How did we come to hold the beliefs we do about the natural world? How were the great scientists of the past led to the discoveries for which they are remembered? Why did people in the past have very different ideas on issues like the motions of the heavens or the nature of the human body? It is a puzzling reality of world history that the human understanding of nature, society, and the mind has varied greatly with place and time. This intriguing variety also raises philosophical questions: What separates science from pseudoscience or religion? How can we decide whether scientific knowledge will have good or bad consequences for humanity? Can science ever reach the ultimate truth about the universe?

The minor in history and philosophy of science offers courses in such diverse departments as economics, history, mathematics, philosophy, and psychology. It presupposes no specialized scientific background and may be combined with any undergraduate major. Five four credit courses are required for the minor, with no more than three from any single department.

Students interested in taking the minor should contact the coordinator, Jan Golinski, Department of History, Horton Social Science Center; e-mail jan.golinski@unh.edu.

ECON 615, History of Economic Thought

ECON 698, Topics in Economics*

ECON 798, Economic Problems*

HIST 521, The Origins of Modern Science

HIST 522, Science in the Modern World

HIST 621, 622, History of American Thought

HIST 651, 652, European Intellectual History

HIST 654, Topics in History of Science

HUMA 651, Humanities and Science

MATH 419, Evolution of Mathematics

PHIL 424, Science, Technology, and Society

PHIL 435, Human Nature and Evolution

PHIL 447, Computer Power and Human Reason

PHIL 630, Philosophy of the Natural Sciences
PHIL 683, Technology: Philosophical and Ethical Issues
PHIL 725, Philosophy of the Social Sciences
PHIL 780, Special Topics in Philosophy*
PSYC 571, Pioneers of Psychology
PSYC 591, Special Topics in Psychology*
PSYC 770, History of Psychology
PSYC 771, Psychology in 20th-Century Thought and Society

*with approval

Humanities Minor ▼

<http://www.unh.edu/humanities-program>

The humanities minor studies the fundamental questions and issues of human civilization. (Interdisciplinary major in humanities is also available. For a more complete description of the humanities program, see [Humanities](#).) The minor consists of a minimum of 20 credits of academic work (five courses), with a minimum grade of C from the following courses:

Two courses from the 510/511/512/513/514/515 sequence:

HUMA 510, The Ancient World: An Interdisciplinary Introduction
HUMA 511, The Medieval World: An Interdisciplinary Introduction
HUMA 512, Renaissance and Early Modern: An Interdisciplinary Introduction
HUMA 513, The Modern World: An Interdisciplinary Introduction
HUMA 514, The Twentieth Century, Part I: 1900-1945
HUMA 515, The Twentieth Century, Part II: 1945-1999

Two other Humanities Program courses, one of which should be at the 600-level:

HUMA 401, Introduction to the Humanities (theme varies)
HUMA 444, Idea of University
HUMA 500, Critical Methods in the Humanities
HUMA 592, The Blues
HUMA 607, The American Character: Religion in American Life and Thought
HUMA 608, Arts and American Society: Women Writers and Artists, 1850-Present
HUMA 609, Ethnicity in America: The Black Experience in the Twentieth Century
HUMA 610, Regional Studies in America: New England Culture in Changing Times
HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
HUMA 651, Humanities and Science: The Nature of Scientific Creativity
HUMA 730, Special Studies in the Humanities
HUMA 700, Seminar in the Humanities

Justice Studies Minor ▼

<http://www.unh.edu/justice-studies>

(For program information on the dual major in justice studies, see [COLA/Justice Studies Dual Major](#).)

Justice studies is an interdisciplinary area that blends topics from humanities departments (e.g., philosophy), social science departments (e.g., psychology, sociology, women's studies), departments that include both humanities and social science faculty (e.g., history, political science), and professionally oriented departments (education, family studies, social work). Some of the topics studied include courts, family violence, rights, substance abuse, juvenile justice, school law, children as witnesses, hate crimes, and community policing. The goal is to produce graduates who have a higher level of knowledge about law and justice in American society and in the world so that they will mature into more knowledgeable and effective citizens. The justice studies minor is intended for students who are looking for careers in the justice system but do not have the time in their academic schedule to complete the dual major program.

The minor in justice studies requires students to take a total of five courses (20 credits) each with a grade of C- or better in order to complete the program. Students are allowed to "double count" no more than two courses toward their major and minor, and are not allowed to take more than two courses from any one department (except for justice studies).

Required Courses

JUST 401, Introduction to Justice Studies

And one of the following three courses

POLT 407, Law & Society

POLT 507, Politics of Crime and Justice

SOC 515, Introductory Criminology

Elective Courses

Students are required to select three elective courses from the Justice Studies approved course list. This list is approved and published yearly by the Justice Studies Executive Committee. Departmental offerings that are currently accepted for the minor include:

BIOL 420, Intro to Forensic Science

CD 717, Law of Community Planning (offered every other year)

CMN 698, Studying the Police

EDUC 767, Students, Teachers and the Law
FS 772, International Approaches to Child Advocacy
FS 794, Families and the Law
FS 776, Children, Adolescents and the Law
HMP 734, Health Law
HIST 509, Law in American Life
HIST 600, Crime and Punishment in Modern History
HIST 609, Special Topics: American Legal History
HIST 645, 19thC European Great Powers - Diplomacy and International Law
HMGT 625, Hospitality Law (only HMGT majors allowed)
HMGT 627, Employment Law
HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
INCO 404F, Medicine and Law in the United States
JUST 401, Introduction to Justice Studies
JUST 405, Technology, Crime & Society
JUST 501, Justice Studies Research Methods
JUST 550/551, Mock Trial (must take year-long course)
JUST 601/602, Internship/Research Internship
JUST 650/651, Budapest Study Abroad
JUST 695, Special Topics in Justice Studies (no more than two courses)
JUST 701, Senior Seminar (writing intensive course)
JUST 767, Students, Teachers, and the Law
JUST 795, Reading and Research (variable credit)
KIN 798, Sports Law
MGT 647, Business Law (only Business Administration, Accounting and Business Administration, and Management allowed)
MGT 648, Business Law II
NR 566, Wildlife Enforcement I
NR 718, Law of Natural Resources and Environment
PHIL 436, Social and Political Philosophy
PHIL 635, Philosophy of Law
PHIL 660, Law, Medicine and Morals
PHIL 701, Value Theory
PHIL 730, Theories of Justice
PHIL 740, Advanced Topics in Philosophy of Law
POLT 407, Law and Society
POLT 507, Politics of Crime and Justice
POLT 508, Supreme Courts and the Constitution
POLT 513, Civil Rights and Liberties

POLT 520, Justice and the Political Community
POLT 568, Intro to Intelligence (only when taught by Professor MacPherson)
POLT 660, Terrorism and Political Violence
POLT 701, The Courts and Public Policy
POLT 707, Criminal Justice Administration
POLT 708, Administrative Law
PSYC 591, Forensic Psychology
PSYC 755, Psychology and Law (Research Methods Prerequisite)
PSYC 756, Psychology of Crime and Justice (Research Methods Prerequisite)
PSYC 791, Advanced Topics: Psychology of Hate
RMP 772, Law and Public Policy in Leisure Services (must have junior/senior status)
SOC 515, Introductory Criminology (or POLT 507)
SOC 525, Juvenile Crime and Delinquency
SOC 535, Homicide
SOC 620, Drugs and Society
SOC 650, Family Violence (must have junior/senior status)
SOC 655, Sociology of Law and Justice
SOC 697, Spc. Top. Perspectives on Terrorism
SOC 715, Criminological Theory
SOC 720, Sociology of Drug Use
SOC 780, Social Conflict
SOC 797, Special Topics: Research in Crime and Justice
SW 525, Introduction to Social Welfare Policy
WS 595, Special Topics: Violence Against Women

Students who are interested in minoring in the justice studies program will need to file an intent to minor form. This form is available in the justice studies office or can be downloaded from the Web site at www.unh.edu/justice-studies. Offices are located in Room 202, Huddleston Hall, and are open Monday through Thursday 8:30 a.m. to 12 p.m. and 1 p.m. to 4 p.m and on Fridays from 9 a.m. to 12 p.m. and 1 p.m. to 4 p.m. For more information contact Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Debbie Briand at (603) 862-1716, e-mail justice.studies@unh.edu.

Latin American Studies Minor ▼

<http://www.unh.edu/colaminors/latin-american-studies>

The Latin American studies minor provides an interdisciplinary approach to the study of Latin America. People of Latin American or Latino heritage will soon comprise the largest minority group in the U.S. Knowledge of Latin America is especially valuable for students who plan to

work in education, international organizations, government, social services, and business, as well as for those who plan to undertake graduate study in Latin America. The minor requires five courses representing three disciplines. Latin American history (HIST 531 or 532) is required. Spanish or Portuguese language courses through the intermediate level are required (completion of SPAN 504 or PORT 504 at UNH, or equivalent courses or equivalency testing). Academic study in Latin America is strongly recommended. Elective courses must be approved by the Latin American Studies minor coordinator or committee and at least 50 percent of any selected course must focus on Latin America. At least three courses must be taken in residence. All coursework required for the Latin American minor must be completed with a grade of C or better. Courses for the minor may not be taken pass/fail.

ANTH 500B, Peoples and Cultures of the World: South America

ANTH 501, World Prehistory: Meso America

ANTH 697, Mayan Culture

EC 535, Environmental Conservation*

HIST 425, Foreign Cultures**

HIST 532, Modern Latin America

HIST 631, 632, Latin American History

POLT 554, Politics of Central America, Mexico, and the Caribbean

POLT 559, Politics of South America

POLT 565, United States- Latin American Relations

POLT 651, Selected Topics in Comparative Politics**

PSPAN 641, Phonetics

SPAN 522, Latin American Literature in Translation

SPAN 526, Latin American Culture and Civilization

SPAN 622, Latin American and Brazilian Literature in Translation

SPAN 648, Current Periodicals

SPAN 653, 654, Introduction to Latin American Literature and Thought

SPAN 771, Latin American Drama

SPAN 772, Latin American Novel

SPAN 773, Latin American Short Story

SPAN 797, Latin American Literature

*Since less than 50 percent of this course deals with Latin America, students must talk to the professor at the beginning of the semester and declare their intention to apply it to the Latin American studies minor. All research paper/projects must focus on a Latin American topic.

**When course content is relevant.

For more information on the Latin American studies minor, contact Marco Dorfsman, Latin

American studies minor coordinator, Murkland 210F, (603) 862-3448; e-mail marcod@cisunix.unh.edu.

Linguistics and TESOL Minors ▼

<http://www.unh.edu/linguistics>

Linguistics is the study of one of the most important characteristics of human beings— language. It cuts across the boundaries between the sciences and the humanities. This interdisciplinary minor consists of any five linguistics courses approved by the coordinator of the linguistics program. It is highly recommended that English 405 or Linguistics 405 (or 505), Introduction to Linguistics, be one of the five.

A minor in TESOL also is available. The TESOL minor is a set of courses that are related to teaching English to speakers of other languages. This minor primarily is for students who are interested in teaching English as a second/foreign language (ESL/EFL) or social work or other professions that require regular interaction with nonnative English speakers. It also will be a good preparation for students who want to later pursue ESL certification or an M.A. in TESOL at UNH or another institution.

This minor will not certify students to teach in N.H. public schools (K-12). For that purpose, students need to complete the ESL certification program that is offered by the education and English departments.

The TESOL minor requires the following five courses (See course descriptions at www.unh.edu/linguistics):

ENGL 715, TESL Theory and Methods

ENGL 716, Curriculum, Materials, and Assessment in ESL

One course on the structure of English

ENGL 791, English Grammar; or

ENGL/LING 405, Introduction to Linguistics

Two electives from the list of approved TESOL electives:

COMM 522 Acquisition of Language

ENGL/LING 717, World Englishes (WI)

ENGL/LING 719, Sociolinguistics Survey

ENGL 727, Issues in Second Language Writing (WI)

ENGL 752, History of the English Language (WI)

ENGL/LING 790, Special Topics in Linguistics (when offered on a TESOL-related topic) (WI)

LLC 791, Methods of Foreign Language Teaching

Students must receive a C- or better in each course and achieve a 2.0 GPA in the five courses.

No more than eight transfer credits will be accepted.

For more information about both the Linguistics and TESOL minors, please contact Mary Clark, mmc@cisunix.unh.edu, 862-3714.

Queer Studies Minor ▼

<http://www.unh.edu/queerstudies>

The queer studies minor provides students with opportunities to research and understand the history, status, challenges, contributions, and changes in the lives of gay, lesbian, bisexual, and trans-gendered individuals and movements. This minor enables students to explore the relationship between gender and sexual orientation, and to understand queer discourse across the intellectual landscape, in the humanities, the arts, and the social sciences. The increasingly public face of queer life has generated new fields of academic study. As this new area evolves, it provides a framework for addressing the phenomena of queer life and intellectual developments through the exploration of the ideas, social pressures, historical circumstances, constraints, and powers that guide queer communities. The minor consists of interdisciplinary coursework in queer studies and is open to all students. Students who wish to pursue the queer studies minor should consult with the queer studies coordinator at queer.studies@unh.edu or contact the program through the Women's Studies office, (603) 862-2194.

Queer Studies Course Offerings

ANTH 697, African Sexuality and AIDS

CMN 567, Images of Gender in the Media

CMN 583, Gender and Expression

ENG 798Q/ENG 694, LGBT Writing, Queer Reading

FS 624.02, Developmental Perspectives: Adolescence

FS 746, Human Sexuality

FS 757/857, Race, Class, Gender, and Families

HIST 497, Gender and Sexuality in African History

HIST 595, Colloquium: Gender and Sexuality in Pre-Modern Europe

HIST 595, Colloquium: Sex and Sexuality in Islamic History

HIST 596, Introduction to Gay and Lesbian History

HIST 665, Sex in the City

HUM 401, Sex and Love in Literature and Philosophy

INCO 404, Honors Seminar: History of Body and Sexuality

JUST 695, Topics in Race, Gender
POLT 525, Multicultural Theory
PSYC 595, Applied Psychology (Research, Field, or Academic Experience)
PSYC 791, Psychology of Hate
SOC 520, Sociology of the Family
SOC 570, Sexual Behavior
SOC 630, Sociology of Gender
SW 715/815, Social Work Practice with Gay, Lesbian, and Bisexual Clients
WS 444, Constructing Gender Identities and Expression
WS 595, Violence Against Women
WS 595W, Topics in Performing Gender
WS 595, Special Topic: Transgendered Identities and Politics in American Culture
WS 632, Feminist Thought (depending on instructor)
WS 632, Honors Thesis (or other departmental designation)
WS 795, Independent Study (or other departmental designation)
WS 797, Internship (or other departmental designation)
WS 798, Colloquium: Race, Gender & Representation
WS 798, Colloquium: Queer Theory
WS 798, Colloquium: Global Feminist Issues

Approved Electives

ANTH 625.01, Female, Male, and Society
ARTS 690, Women Artists of the 19th & 20th Century
CMN 583.02, Gender and Communication
CMN 697.01, Contemporary Feminist Rhetoric
FS 545, Family Relations
PHIL 510, Philosophy of Feminism
PHIL 735.01, Feminist Phenomenology
POLT 721/821, Feminist Political Theory (may be available as a regular offering)
PSYCH 763, Community Psychology
SOC 630, Sociology of Gender
SOC 570, Human Sexual Behavior
SW 840, Implications of Race, Culture, and Oppression for Social Work Practice
WS 401, Introduction to Women's Studies
WS 595.01, Activism: VAW, Poverty, Repro Rights
WS 632, Feminist Thought (depending on instructor may be counted as a regular offering)

Religious Studies Minor ▼

<http://www.unh.edu/colaminors/religious-studies>

Director: David Frankfurter

The religious studies program at the University of New Hampshire currently offers an interdisciplinary minor, bringing together courses in several fields that address religion as a cultural, logical, or expressive phenomenon in human history. A religious studies major is available through the self-designed major program. Religious studies courses at UNH avoid theological or confessional biases and emphasize multicultural tolerance and diversity.

Requirements of the religious studies minor include the basic two-semester sequence, History of World Religions (RS/HIST 483) and Patterns in World Religions (RS/HIST 484); the advanced Minors' Seminar in Religious Studies to be taken students' senior year (RS 699); and at least two other courses either cross-listed in religious studies, announced in the *Religious Studies Bulletin*, or otherwise relevant to the study of religion (by student's petition to the program director). Students especially interested in religious studies are encouraged to combine the minor with further pertinent coursework in one of the established departments contributing to the program: history, philosophy, anthropology, and English. The religious studies self-designed major involves seven courses beyond the minor requirements, at least five of which are 600 level or higher. The program director can aid in advising such a major program.

Courses included in the biannual *Religious Studies Bulletin* ordinarily have some degree of focus on issues related to the academic study of religion, conceptualizing religion or religious influences as a principal problem, asking comparative questions, and/or developing models of cross-cultural usefulness. Courses listed here generally are offered at least once every two years:

Historical-Cultural

RS/HIST 483, History of World Religions

HIST 585, Middle East History to the Medieval Islamic Era

HIST 587, Africa South of the Sahara

HIST 589, Islam in Africa

RS/ENGL/AMSTUD 607, Religion in American Life and Thought

RS/ANTH 617, Religion and Conflict in South Asia

HIST 642, Religious Conflict in Early Modern Europe

HIST 688, African Religions

Theoretical

PHIL 417, Philosophical Reflections on Religion
RS/HIST 484, Patterns in World Religions
ANTH 616, Religion, Culture, and Society
RS/HIST 682, Cults and Charisma
RS 699, Senior Seminar in Religious Studies
RS/ANTH 770, Anthropology of the Sinister

Textual

ENGL 518, The Bible as Literature
HIST/RS 576, The Hebrew Bible in Historical Context
HIST/RS 601, Seminar in Religious Texts
HIST/RS 689, The New Testament in Historical Context

Interested students also should be alert for special topics courses in history (HIST 600), English (ENGL 697/698), anthropology (ANTH 500), religious studies (RS 600), and other disciplines that might be relevant to the study of religion. Copies of the *Religious Studies Bulletin*, which includes all such courses each semester, can be picked up outside the director's office.

Students interested in the religious studies minor should see the director to fill out an intent-to-minor form by the beginning of their junior year. For more information, consult the director, David Frankfurter, Department of History, 436 Horton Social Science Center, (603) 862-3015; e-mail davidTf@unh.edu.

Women's Studies Minor ▼

<http://www.unh.edu/womens-studies>

The women's studies minor offers students an interdisciplinary introduction to the status and contributions of women in various cultures and historical eras. (An interdisciplinary major is also available. For a more complete description, see [Women's Studies](#).)

For the women's studies minor, students must complete 20 credits of Women's Studies courses with a grade of C or better. Courses taken pass/fail may not be used toward the minor. No more than eight credits used to satisfy the requirements for the major may be used for a minor. Students electing the Women's Studies minor must complete WS 401, Introduction to Women's Studies, or WS 405, Gender, Power, and Privilege, and WS 798, Colloquium in Women's Studies, normally taken at the beginning and end of the course sequence, respectively. It may be possible to substitute WS 797, Internships, for WS 798, Colloquium, with permission from a Women's Studies adviser. Additionally, students must complete three

other Women's Studies courses, either program courses or those that are cross-listed with other departments.

Other Women's Studies courses are WS 595, Special Topics in Women's Studies; WS 632, Feminist Thought; WS 795, Independent Study; WS 796, Advanced Topics in Women's Studies; and WS 797, Internships.

Departmental offerings include the following regularly repeated courses:

ARTS 487, Themes and Images in Art: Major Mythic Images of Women

ARTS 690, Women Artists of the Nineteenth and Twentieth Centuries

CMN 567, Images of Gender in the Media

CMN 583, Gender and Expression

ECON 698, Topics in Economics: Women in Economic Development

ENGL 585, Introduction to Women in Literature

ENGL 586, Introduction to Women Writers

ENGL 685, Women's Literary Traditions

ENGL 785, Major Women Writers

FS 545, Family Relations

FS 757, Race, Class, Gender, and Families

HIST 565, Women in Modern Europe

HIST 566, Women in American History

NURS 595, Women's Health

PHIL 510, Philosophy and Feminism

SOC 630, Sociology of Gender

Students may complete the minor requirements by selecting from other courses that are offered as special topics by the departments. In the past, such offerings have included the following:

AMST 696/HIST 609, Women, Law, and Culture

ANSC 415, Women in Science

ARTS/ENGL/HUM 608, Arts in American Society: Women Writers and Artists, 1850 to Present

CMN 597, Rhetoric of Early Women's Rights

CMN 696, Feminist Voices

EDUC 701, Sex Roles, Learning, and School Achievement

ENGL 694, GLBTQ Literature

ENGL 797, Shakespeare's Sisters: Women Writers of the English Renaissance

FREN 525, French Women: Subject and Object

FREN 635, French Women in Life and Literature
GERM 520, Women in German Literature and Society
GERM 523, Women in German Film
HIST 665, Themes in Women's History
FS 797, Race, Class, Gender, and the Family
PHIL 510, Philosophy and Feminism [Rev. 10/06]
SPAN 798, Women Writers of the 20th Century

Students who wish to minor in women's studies should consult with the coordinator, 203 Huddleston Hall, (603) 862-2194.

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- Art and Art History
- Chinese
- Classics
- Communication
- Education
- English
- European Cultural Studies
- French
- Geography
- German
- Greek
- History
- Humanities
- International Affairs Dual Major
- Italian Studies
- Japanese
- Justice Studies Dual Major
- Languages, Literatures, and Cultures
- Latin
- Linguistics
- Music
- Philosophy
- Political Science
- Portuguese
- Psychology
- Russian
- Sociology
- Spanish
- Theatre and Dance
- Women's Studies

Undergraduate Course Catalog 2009-2010

College of Liberal Arts ▼

» <http://www.unh.edu/liberal-arts/>

Anthropology (ANTH) ▼

» <http://www.unh.edu/anthropology/>

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Chairperson: Joe L.P. Lugalla

Professor: Joe L.P. Lugalla

Associate Professor: Justus M. Ogembo, Robin E. Sheriff

Research Associate Professor: Curt D. Grimm

Assistant Professor: Eleanor Harrison-Buck, Meghan C.L. Howey, Svetlana Peshkova

Lecturer: Courtney Kurlanska, Teresa P. Raczek

Anthropology asks the question: What does it mean to be human? We answer this fundamental query with a global perspective on the human condition as students explore both the similarity and diversity of human experience. Through courses that cover a wide range of societies throughout the world, we investigate the human condition, past and present. Introductory courses provide an overview of the fields of anthropology: social and cultural anthropology, archeology, physical anthropology, and linguistics. More advanced courses provide the opportunity for students to pursue intensive study of particular topics in cross-cultural perspective. The department emphasizes critical thinking and writing skills and encourages close faculty/student contact in seminar courses and at the upper level. Students, in consultation with their academic adviser, have the opportunity to take courses in other departments that complement specific foci in anthropology.

At this time of increasing globalization, anthropology provides students with a broad overview of diverse peoples and cultures. Majors are therefore well prepared to live in a rapidly changing world. The major both prepares students for graduate-level studies and serves as a foundation for a wide range of careers. With backgrounds in anthropology, our students become teachers, social workers, public policy experts, forensic investigators, health practitioners, primatologists, international business executives, and community and economic development specialists, as

well as pursuing various other careers.

Majors must complete a minimum of 40 credits in anthropology with grades of C or better and in accordance with the following requirements:

Required

ANTH 411, 412, or 415

ANTH 511

ANTH 701

ANTH 702

Two additional courses numbered below 599 (of which one must focus on a specific geographical area)

Four additional courses numbered 600 or above (of which two must be in designated seminar format, one seminar at the 700-level. Seminar courses are ANTH 610, 610W, 614, 616, 685, 690, 697, 698, 705, 720, 760, 770, 780, 785, 797.)

Anthropology majors may use up to two major courses to satisfy General Education requirements.

American Sign Language may not be applied toward the foreign language requirement.

Honors-in-major and senior thesis options are available.

Students who declare a major in anthropology are expected to make steady progress toward fulfillment of major requirements. Normally, this means taking at least one anthropology course per semester until all of the requirements have been met. A student who has fulfilled most of the major requirements may request an exception to this policy from his or her adviser.

Students wishing to major in anthropology should consult with the anthropology chairperson.

The anthropology minor consists of 20 credits in anthropology courses with a C or better at least one of which must be numbered above 600.

» [Click to view course offerings](#)

^ [back to top](#)

Art and Art History (ARTS) ▼

» <http://www.arts.unh.edu/>

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Chairperson: Michael McConnell

Professor: Grant Drumheller, Patricia A. Emison, Craig A. Hood, Scott Schnepf, David R. Smith, Mara R. Witzling

Associate Professor: Benjamin S. Cariens, Brian W.K. Chu, Eleanor M. Hight, Michael McConnell, Maryse Searls McConnell, Jennifer K. Moses

Assistant Professor: Julee Holcombe, Leah Woods

Lecturer: Rebecca Litt

The courses offered by the Department of Art and Art History provide an opportunity, within the liberal arts framework, for students to acquire a thorough knowledge of the basic means of visual expression, to study intensively the history of art, or to prepare themselves for a career in art teaching. In addition, these courses offer foundation experience for students who are interested in art but are majoring in other departments in the University. The Department of Art and Art History offers programs leading to a bachelor of arts degree in either studio art or art history and a bachelor of fine arts degree in studio art. Certification for art teaching in the public schools is also offered in cooperation with the Department of Education (see [Education](#), under Programs of Study).

The University reserves the right to retain selections from a student's work for a period of not more than two years.

Bachelor of Arts Curriculum (Studio)

Students selecting to work toward a bachelor of arts degree in studio art must complete a minimum of thirteen courses (52 credits), with a minimum grade of C- in each course.

The following courses are required

ARTS 480, Introduction to Art History

ARTS 532, Introductory Drawing

ARTS 546, Introductory Painting

ARTS 567, Introductory Sculpture

ARTS 632, Intermediate Drawing

One of the following

ARTS 536, Introductory Printmaking: Intaglio

ARTS 537, Introductory Printmaking: Lithography

ARTS 551, Photography

One of the following

ARTS 501, Ceramics
ARTS 525, Woodworking
ARTS 667, Sculpture Workshop

Three additional courses in a studio concentration at 600 level or above

One additional studio elective

Two additional art history courses, at least one of which must be at the 600 level or above

While these courses represent the minimum departmental requirements for the studio art major, students may wish to plan a program involving greater depth in one or several of the studio areas.

Art History Major

The art history major provides a comprehensive, in-depth study of Western art from the ancient world to the present as well as some exposure to non-Western cultures and artistic traditions. All courses in the program teach basic skills of interpretation and critical analysis within the framework of broad cultural perspectives that connect the visual arts to larger historical developments. They also teach good writing and research skills. In addition, art history majors typically branch out into other fields, such as history, literature, and foreign languages. By the time they graduate, most majors are well equipped to pursue such traditional careers in the field as museum and gallery work, teaching, publishing, or librarianship. But because art historical education is so broad, it also prepares students for a variety of other, more flexible options, such as law, business, or architecture.

Students must complete a minimum of 10 courses (40 credits). The following courses are required:

ARTS 480, Introduction to Art History
ARTS 532, Introductory Drawing
ARTS 795, Methods of Art History
ARTS 799, Seminar in Art History

Also required are six 600- or 700-level art history courses: one each from the Pre-Renaissance, Renaissance/Baroque, and Modern areas, and three in any area. These courses must be completed with a minimum grade of C-. Art history majors receive preferential placement in ARTS 532. Students contemplating graduate school should learn German, and, if possible, either French, Italian, or another language relevant to their areas of interest.

Bachelor of Fine Arts Major

Incoming first-year applicants wishing to enter the bachelor of fine arts (B.F.A.) degree program must first apply for, and be admitted to, the bachelor of arts (B.A.) studio arts major. After taking the introductory studio art courses at UNH, interested students can then seek out two faculty members to sponsor their application for the B.F.A. program. Studio majors generally wait until they are well into the intermediate-level courses before submitting a portfolio for the B.F.A. review, which is held before a full faculty committee twice a year.

The B.F.A. curriculum provides training for students who plan to enter professional graduate school or pursue careers as professional artists. Students selecting to work toward a B.F.A. degree must complete a minimum of 19 courses and 80 credits, with a minimum grade of C- in each course.

The following courses are required

ARTS 480, Introduction to Art History

ARTS 532, Introductory Drawing

ARTS 546, Introductory Painting

ARTS 551, Photography

ARTS 567, Introductory Sculpture

ARTS 598, Sophomore Seminar

ARTS 632, Intermediate Drawing

ARTS 798, Seminar/Senior Thesis (8 credits)

Six courses in a studio concentration

Three additional art electives

Two art history courses, at least one of which must be at the 600 level or above

The possible areas of concentration within the department are painting, sculpture, and individualized programs. Individualized programs may be designed in ceramics, drawing, printmaking, photography, and furniture design. Proposals for individualized programs are accepted only by permission of the departmental chairperson, the major adviser, and the departmental bachelor of fine arts committee. Candidates applying for the bachelor of fine arts program are required to submit a portfolio to the B.F.A. committee, which meets each semester one week before preregistration.

Art Education Curriculum

The program in art education is organized into a five-year, teacher-education sequence.

This curriculum is designed to prepare teachers of art in the public schools. The satisfactory

completion of the B.A. studio art curriculum for art education students and required education courses, in conjunction with the fifth-year internship, will satisfy the initial certification requirements for teachers of art in the public schools of New Hampshire and in most other states. These requirements may change by the time students apply for certification and the students are required to fulfill the then-current requirements.

Art education students may take accredited crafts courses at other institutions as art electives.

Minors in the Department of Art and Art History

All minors require five courses (20 credits). Students must receive a minimum grade of C- in all required courses. Only two courses from the art and art history major requirements can be applied toward the minor.

A maximum of two courses (eight credits) may be transferred from another accredited institution, provided UNH has accepted them as transfer credits. Transfer courses must be a minimum of three credits. Students with transfer courses that are accepted with less than four semester credits must still meet the 20 credit requirement for completion of the minor.

Minor in Architectural Studies

The minor in architectural studies provides students with an interdisciplinary introduction to the history, theory, and methods of architecture and its symbolism. The program allows students who are interested in this field to receive programmatic recognition of their work. It is designed to assist those who are contemplating enrollment at a school of architecture; are particularly interested in architectural history; want to supplement their technical majors (e.g., civil engineering) with strong academic minors; or plan to pursue careers in preservation, education, community service, and public relations.

The minor in architectural studies consists of five courses (20 credits) distributed in the following way:

ARTS 455, Introduction to Architecture

ARTS 532, Introductory Drawing

Three courses in architectural art history

Minor in Art

The minor in art consists of five courses (20 credits) chosen from the offerings of the department, two of which must be at the 500 level or above.

Minor in Art History

The art history minor offers those majoring in other fields (including studio art) the chance to gain a serious knowledge of aspects of the history and meanings of Western art from antiquity to the modern world. Particularly for those working in history and the humanities, a minor in art history will provide new interdisciplinary perspectives on their major fields. The minor consists of five courses (20 credits) with a distribution that includes ARTS 480, Introduction to Art History, and four additional art history courses at the 600 level or above.

Minor in Studio Arts

The minor in studio arts consists of five courses (20 credits) with a distribution that includes Arts 532, Introductory Drawing; two studio courses from the 600- level or above; and two additional studio courses chosen from the offerings of the department.

» [Click to view course offerings](#)

^ [back to top](#)

Chinese (CHIN) ▼

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For program description, see [Languages, Literatures, and Cultures](#).

» [Click to view course offerings](#)

^ [back to top](#)

Classics (CLAS) ▼

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Associate Professor: Stephen Andrew Brunet, Robert Scott Smith, Stephen M. Trzaskoma

Senior Lecturer: Richard E. Clairmont

Lecturer: Susan Curry

While it is true that classical Greek and Latin are no longer spoken languages, the literature and art of the Ancients speak to us still. To study the classics is to come into direct contact with the sources of Western civilization and culture, both pagan and Christian. An intimate knowledge of our Greco-Roman heritage furnishes students of the classics with historical, political, and aesthetic perspectives on the contemporary world. An undergraduate classics

major provides excellent preparations for careers not only in academic, but also in nonacademic professions. A background in classics is, moreover, highly advantageous for applicants to graduate and professional schools in English, modern languages, history, philosophy, law, medicine, and theology. Finally, for the qualified student who is undecided about a major but interested in a sound liberal arts education, classics may be the best option.

The classics major is offered by the Classics program of the Department of Languages, Literatures, and Cultures. The minimum requirements for a major in classics are 40 credits offered by the Classics program. Twenty-four of these must be in Greek and/or Latin. A classics major must complete as a minimum a 700-level course in one of the classical languages. A minimum of three courses must be taken at the Durham campus. Students will be encouraged to take courses in related fields such as ancient history, classical art, modern languages, and English, and to take part in overseas study programs in Greece and Italy.

A minor in classics consists of five courses (20 credits) in classics, **Greek**, and/or **Latin**.

The coordinator is Stephen Brunet, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-2077; e-mail sabrunet@cisunix.unh.edu.

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^ [back to top](#)

College of Liberal Arts (COLA) ▼

» [Click to view course offerings](#)

Communication (CMN) ▼

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Chairperson: Lawrence J. Prelli

Professor: Sheila McNamee, Joshua Meyrowitz, Lawrence J. Prelli

Associate Professor: Jennifer L. Borda, Melissa D. Deem, James M. Farrell, Mardi J. Kidwell, John Lannamann

Assistant Professor: Josh Lauer, Danielle Pillet-Shore

Affiliate Assistant Professor: Carol B. Conaway

Lecturer: R. Michael Jackson

The purpose of the communication major is to prepare students to engage more knowingly with

the communicative patterns, problems, and practices that they will encounter in their personal, professional, and civic lives. This purpose requires that students learn to move beyond commonplace and conventional understandings of “communication” and acquire sophisticated perspectives—workable orientations—for describing, analyzing, reflecting upon, and engaging with those patterns, problems, and practices. Accordingly, the major not only acquaints students with a variety of empirical, critical, historical, theoretical, and pragmatic perspectives on communication phenomena, but encourages them to formulate workable orientations of their own for engaging with communication issues and questions. Students who graduate with a communication major are prepared to become thoughtful and proficient “communication decision-makers” during their post-graduate lives.

Students wishing to declare communication as a major should contact the Director of Undergraduate Advising for application information and requirements.

Communication Major

Majors must complete ten courses (40 credits) with a 2.0 overall average in the major. The distribution of required courses for the major is as follows:

Three introductory courses (12 credits)

CMN 455, 456, and 457 (12 credits). Majors must earn a grade of C or better in each introductory course.

Two 500-level communication analysis courses (eight credits)

The two 500-level courses must have different 400-level prerequisites. Majors must earn a grade of C- or better in both analysis courses before taking 600-level courses. CMN 599 (Internship) cannot be used to fulfill an analysis course requirement.

Five upper-division courses (20 credits)

Students must choose to focus at least three of their upper-division courses on one of six thematic concentrations: Histories and Traditions in Communication; Political Communication and Public Space; Communication, Community, and Everyday Life; Culture and Identities; Citizenship and Advocacy; and Visual Communication. At least two of the student’s five upper-division courses should be at the 700-level. Majors must earn a grade of C- or better in all upper-division courses.

A maximum of four credits of independent study (CMN 795) may be counted toward the major. CMN 799 (Honors Thesis) and CMN 796 (Commentary) cannot be used to fulfill an advanced course requirement.

Transfer students must complete 20 credits of their communication coursework at UNH to

complete the major satisfactorily. Exchange students may transfer no more than 10 approved credits from another institution to be applied toward completion of the communication major at UNH.

Communication Minor

The communication minor consists of five courses (20 credits). Students must complete a minimum of two 400-level introductory courses (CMN 455, CMN 456, or CMN 457), a minimum of two 500-level analysis courses, and a minimum of one advanced 600-level or 700-level course.

Students who pursue a communication minor must complete five courses within the minor with a C or better at the 400-level and with a C- or better at the 500-, 600-, and 700-levels, and maintain a minimum grade-point average of 2.0. No more than two transfer courses from other institutions can be applied to the minor and all transfers are contingent upon departmental approval. No more than four credits of independent study can count toward the minor. No pass/fail or credit/fail courses can count toward the minor.

Media Practices Option

This option is designed for qualified students who want to augment their communication major at Durham with training in media production and applied media communication through courses in the communication arts department at the Manchester campus. Qualified students who meet all requirements will graduate with a B.A. degree in communication: media practices option. In addition to communication major requirements, students are required to take two designated media practices courses at the Manchester campus and complete a four credit media practices internship (CMN 599). Students must maintain both an in-major and cumulative grade-point average of at least 2.5 to satisfactorily complete the media practices option.

Business Applications Option

This option is designed for qualified students who want to augment their communication major with professional training in such areas as marketing, advertising, and organizational behavior through courses at the Whittemore School of Business and Economics. Qualified students who meet all requirements will graduate with a B.A. degree in communication: business applications option. In addition to communication major requirements, students are required to take three business applications option courses designated at WSBE and complete a four credit business applications internship (CMN 599). Students must maintain both an in-major and cumulative grade-point average of at least 2.5 to satisfactorily complete the business applications option.

» [Click to view course offerings](#)

^ [back to top](#)

Education (EDUC) ▼

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Chairperson: Todd A. DeMitchell

Associate Chairperson: Michael J. Middleton

Professor: Todd A. DeMitchell, Ann L. Diller, Janet Elizabeth Falvey, David J. Hebert, Barbara E. Houston, Bruce L. Mallory, Sharon N. Oja, Paula M. Salvio

Affiliate Professor: Tom Franke, David C. Hagner, Jeanne E. Ormrod

Associate Professor: Eleanor D. Abrams, Grant L. Cioffi, Vincent J. Connelly, Leslie J. Couse, Mary K. Fries, Virginia E. Garland, Georgia M. Kerns, Michael J. Middleton, Jane A. Nisbet, Justus M. Ogembo, Joseph J. Onosko, Loan T. Phan, Harry J. Richards, Judith A. Robb, Thomas H. Schram, Judy Sharkey, William L. Wansart, Ruth M. Wharton-McDonald

Affiliate Associate Professor: Wanda S. Mitchell

Assistant Professor: Eun Kyeong Cho, Suzanne E. Graham, Sarah M. Stitzlein

Research Assistant Professor: Cheryl M. Jorgensen, Mary C. Schuh

Affiliate Assistant Professor: John F. Hornstein, Cari A. Moorhead

Senior Lecturer: Timothy J. Churchard

Lecturer: Lara Gengarely, Janet L. Thompson

Extension Educators: Mark Wiley

Basic Programs

At the undergraduate level, students have the opportunity to begin taking courses in teacher preparation programs, which will lead at the graduate level to teacher licensing in elementary and secondary education. They also may wait to prepare to teach solely at the graduate level.

Students majoring in music, mathematics, nursery/kindergarten, and physical education have the option of participating in a five-year program leading to licensure and a graduate degree. Or they may choose the four-year option in those majors, which leads to licensure at the undergraduate level. Students interested in the four-year option in these areas should contact the departments for information. Students interested in agriculture and occupational education should contact Michael Andrew in the Department of Education.

Elementary teaching and most secondary areas require completion of a one-year graduate program, which leads to a master's degree and teacher licensure. Most students who plan to teach in elementary and secondary schools apply to the graduate school to complete a five-year program. In the five-year program, students begin preparation for teaching at the undergraduate level with a semester of field experience (EDUC 500, Exploring Teaching) and

professional course work in education. Students complete a baccalaureate degree outside of education and move into a fifth year of study and a full-year internship leading to the M.Ed. or M.A.T. degree and licensure in teaching.*

There also are opportunities for study or certification at the graduate level in administration, counseling, elementary and secondary teaching, early childhood, reading, special education, and adult and occupational education. The department encourages students interested in graduate study or in relevant undergraduate courses to meet with these graduate program coordinators in the Department of Education.

Students at the undergraduate level who are interested in special education or early childhood education can begin to complete prerequisite coursework for the graduate program leading to certification in special education (K-12) or early childhood education. For students seeking the M.Ed. in special education or early childhood education without certification in general education, it is not necessary to complete Education 500. For coursework that can be taken at the undergraduate level, students should see program advisers in the Department of Education.

*Students in the five-year program may combine their program for teacher licensure with a master's program in their major field department.

Program Philosophy and Mission

Unit Mission Statement The following conceptual framework guides all of the programs that prepare professionals in education at the University of New Hampshire:

The professional education unit at the University of New Hampshire seeks to prepare practitioners who will become leaders in their own practice settings and within their profession, applying knowledge to improve education for all students and enrich the lives of clients. Immersion in subject matter, research, theory, and field-based experience provides a base for our graduates to make well-reasoned judgments in complex situations, render informed decisions, model exemplary practice, and take initiative for planned change.

Students learn to establish caring environments that celebrate individual differences and backgrounds while fostering cooperation and educational improvement. We stress reflective critical inquiry as a mode of study, and community-building as a means for promoting change. We value and support both our students' local practice and their broader leadership within the profession.

Mission of Programs in Teacher Education

The following mission statement gives direction to the basic and advanced programs in teacher education:

We seek to prepare beginning teachers who demonstrate excellence in classroom practice and who will become educational leaders. Our graduates will possess the knowledge, skills, and dispositions required for outstanding classroom practice and eventual leadership within the local school community and the larger education community.

Undergraduate Work toward Teacher Certification in Elementary and Secondary Education

Phase I. Enroll in Exploring Teaching: Education 500

Students are encouraged to take EDUC 500, Exploring Teaching, as a sophomore, but completion during junior or senior year also can leave enough time for other education course requirements.

Exploring Teaching is also available through the Live, Learn, and Teach summer program, which is open to juniors and seniors. For information, contact the Department of Education, 203 Morrill Hall. A positive recommendation from the Exploring Teaching instructor is required before further coursework is taken in the teacher education program.

Phase II. Professional Coursework in Education at the Undergraduate Level

Education 500 is a prerequisite to further work in the teacher education program. An undergraduate receives a co-adviser in the Department of Education (usually the Exploring Teaching instructor). Along with the major adviser, this co-adviser works with the students to plan the undergraduate portion of the five-year teacher education program.

Every student must take four credits in each of five areas, as follows: EDUC 700, Educational Structure and Change; EDUC 701, Human Development and Learning: Educational Psychology; EDUC 703, Alternative Teaching Models (or other required methods course(s)); EDUC 705, Alternative Perspectives on the Nature of Education; EDUC 751, Educating Exceptional Learners. EDUC 707, Teaching Reading through the Content Areas, is required for some secondary subject licensure areas. Elementary education students are required to have four methods courses: one each in the teaching of reading, mathematics, science, and social studies. Those who do not intend to use this coursework for initial licensing may enroll with instructor permission. All 700-level education courses at UNH are restricted to students with junior or senior standing. These courses may also be taken at the graduate 800-level.

Any course taken in the Department of Education that will be used to fulfill a teacher licensure

requirement must be completed with a grade of B- or above.

Phase III. Internship and Graduate Phase of the Teacher Education Program

Undergraduates should apply to the Graduate School by November 1 in the first semester of the senior year for the final phase of the teacher education program.

The final phase of the program includes a full-year internship, electives, and a program portfolio and colloquium. This phase normally takes an academic year plus a summer to complete.

Students with an undergraduate grade-point average of 3.2 or better may be allowed to begin the program in the second semester of the senior year, earning a maximum of eight graduate credits.

The year-long internship (EDUC 900/901) is part of the final stage of the five-year program. It meets the goals of increased clinical experience and better integration of theory and practice.

The internship is a teaching and learning experience in which the intern is involved in an elementary or secondary school over the course of an entire school year. Interns become a part of the school staff, sharing appropriate instructional tasks, and often carrying the full instructional duties in one or more classes.

Interns are mentored and supervised by a school staff member who is designated as a "cooperating teacher." A UNH faculty member collaborates in intern supervision and conducts a weekly seminar for all interns with whom he/she is working.

The internship is a full-time experience for six graduate credits each semester. It typically begins in September and runs through May or June. Due to the intensive time commitment, it is recommended that, at most, only one course be taken in addition to the internship each semester.

Before the internship, all students will have completed a bachelor's degree with a major outside of education. Because of this, they will possess a depth of knowledge in a subject area and a broad general education, in addition to substantive preparation for teaching. Secondary education candidates must have completed an approved major, or its equivalent, in the subject that they intend to teach. Elementary education candidates may pursue an undergraduate major in any area; however, majors in the core disciplines taught in elementary schools are desirable.

Undergraduates should apply for internship in September/October of their senior year. At the

same time, it is advisable to begin the application process for graduate school. Arranging an appropriate placement is a time-consuming process. Starting early will facilitate finding the best setting for students' needs and goals. The director of field experiences in Durham and the associate director of teacher education in Manchester play a major role in identifying internship sites and should be consulted regarding the placement process. Internship applications are available at the Department of Education, Durham, and the Office of Teacher Education, Manchester. Admission to the internship requires a completed application to the internship, admission to the graduate school, and a consultation with the director of field experiences. Please note: Undergraduates interested in the master's degree in early childhood education, the early childhood special education option, and special education do not apply for internships in their senior year. Internships for this program are arranged with program faculty once core graduate requirements are met.

Admission to the Program

Phase I - Exploring Teaching is open to all students, subject to available space. Approximately 150 students are accepted each semester.

Phase II - Continuation in Professional Coursework is dependent upon positive recommendations from Education 500, Exploring Teaching.

Phase III - Admission to the Internship and the Graduate Program requires acceptance to the Graduate School. The process is competitive because of high admissions standards and limited space in the program. Approximately 80 percent of applicants for Phase III are accepted.

In determining admission of students to teacher education graduate programs, several criteria are used:

1. Undergraduate Grade-Point Average

The undergraduate grade-point average of the middle 50 percent of students admitted to the graduate programs in teacher education falls in the range of 3.15-3.53.

2. The Graduate Record Examination Scores

The Graduate Record Examination (GRE) scores of the middle 50 percent of students admitted to the graduate programs in teacher education fall in the following range: Verbal, 410-550; Quantitative, 450-600; Analytical, 540-650.

3. Recommendations

Positive recommendations from EDUC 500, Exploring Teaching, or the equivalent and from those able to relay information about a candidate's performance in teaching situations or related areas are important. Recommendations from undergraduate subject major professors also are important.

In the admission process, the program seeks evidence that candidates have the following knowledge, abilities, and dispositions: 1) motives to teach that include a strong social commitment to contribute to society through education; 2) a disposition to care for students—each and every one; 3) the ability to interact positively with children and adults; 4) the capacity to win the respect of their peers and be effective in group interaction, showing openness to the needs and views of others; 5) well-developed communication skills, including speaking, writing, and listening skills as well as an ability to engage others in both the giving and receiving of information and feelings; 6) perceptiveness: the ability to identify and process the relevant details in a given environment, especially in the context of a classroom; 7) the ability to make reasonable judgments in the context of complex situations that change from moment to moment; 8) the capacity for clear thinking and an ability to translate complex thoughts into simple and clear explanations; 9) superior academic skills: extensive knowledge of at least one major discipline, intellectual curiosity, and the ability to be open to the unknown; 10) a disposition to take charge of one's own learning, which includes the active pursuit of feedback and the willingness to take thoughtful risks.

Early Admission

Provision exists for UNH seniors to apply for early admission to the Graduate School, i.e., admission for the second semester of the senior year. Such candidates may petition to have up to eight credits of graduate coursework simultaneously count toward the bachelor's and master's degree. A student must be admitted to the Graduate School before the start of the semester in which the course(s) will be taken in order to receive graduate credit. A minimum of a 3.2 cumulative grade-point average is required to qualify for early admission.

Students interested in early admission apply using the regular graduate school application.

Four-Year, Undergraduate Option

A bachelor's degree including a one-semester teaching requirement allows students to be recommended for licensure in certain specialized areas. Those areas are: mathematics, music, nursery/kindergarten education, and physical education.

These program options include a major appropriate for the licensure being sought, in addition to the following core professional courses or their equivalent: EDUC 500, Exploring Teaching; EDUC 700, Educational Structure and Change; EDUC 701, Human Development and

Learning: Educational Psychology; EDUC 703, Alternative Teaching Models; EDUC 705, Alternative Perspectives on the Nature of Education; EDUC 751, Educating the Exceptional Learner; and EDUC 694, Supervised Student Teaching.

For admission to supervised student teaching, a minimum 2.5 overall (2.8 for nursery/kindergarten) grade-point average at the time of application is required. Applications are due by March 1 of the junior year for the fall semester and October 15 of the senior year for the spring semester. An unofficial transcript and a current résumé must accompany application. Return applications to the Department of Education Office, 203 Morrill Hall.

Students also may become licensed for kindergarten through grade three (early childhood licensure) by completing the master's degree program in early childhood education.

» [Click to view course offerings](#)

^ [back to top](#)

English (ENGL) ▼

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Chairperson: Andrew H. Merton

Professor: Thomas A. Carnicelli, Mary Morris Clark, Walter F. Eggers, Burt H. Feintuch, Michael K. Ferber, Diane P. Freedman, James Krasner, Douglas M. Lanier, Rochelle Lieber, John S. Lofty, Lisa MacFarlane, Mekeel McBride, Andrew H. Merton, Thomas R. Newkirk, David H. Watters, Janet Aikins Yount

Affiliate Professor: Lawrence J. Prelli

Associate Professor: Brigitte Gabcke Bailey, Monica E. Chiu, Robin Hackett, Susan Margaret Hertz, Delia C. Konzett, Martin McKinsey, Lisa C. Miller, Petar Ramadanovic, David Rivard, Siobhan Senier, Sarah Way Sherman, Sandhya Shetty, Rachel Trubowitz

Assistant Professor: Cristy Beemer, Dennis Britton, Sean D. Moore, Christina Ortmeier-Hooper, Thomas Payne, Cord Whitaker, Reginald A. Wilburn, Ann J. Williams

Affiliate Faculty: Edward A. Mueller

Senior Lecturer: Pamela Barksdale, Meredith Hall, Janet Schofield

Lecturer: Shelley Girdner, Dawn Haines, David Howland, Krista L. Jackman, Clark Knowles, Matthias Konzett, Robin Lent, Andrew Marsters, Maya Ravindranath-Abtahian, Nancy Sell, Oksana Semenova, Laura A. Smith, Leah D. Williams, Carol A. Zickell

The English department offers four majors: English, English Literature, English Teaching, and English/Journalism. A fifth undergraduate program is the interdepartmental Linguistics major.

Through these diverse but interrelated programs of study, the English department pursues a three-pronged mission in undergraduate instruction. We seek first to train students in the professional study of literature in the English language. In conjunction with this broad, multifaceted aim, we strive to educate students about the history and nature of English language in its spoken and written forms. As a third and equally important part of our mission, we teach students to write clearly, persuasively, and elegantly. In all five of its undergraduate majors, the English department provides students with the kinds of critical thinking, research, and writing skills that will serve them well in their personal and professional lives.

The English Major

The dual objectives of the general English major are to provide all students with a common core of literary experience and to offer the opportunity to shape a course of study suited to their personal interests. Flexible requirements place a responsibility on each student to devise a program that has an intelligent rationale. For example, students with a special interest in writing are free to take the minimum number of literature courses (five) and complete their major by taking offerings in fiction, creative nonfiction, and poetry writing. All the undergraduate courses offered by the department are open to English majors so that students may sample a range of courses in literature, linguistics, creative or nonfiction writing, and English teaching, according to particular interests that change and grow.

By its very nature, the English major is broad, open, and liberal. It enables students to sample a variety of courses in order to understand the operation of language from many perspectives.

For the English major, students must complete a minimum of 40 credits of major coursework with a grade of C- or better, with the exception of ENGL 419, which must be completed with a grade of C or better. Students must complete ENGL 419, two 500-level courses (or one 500-level course and ENGL/LING 405), six courses numbered 600 and above, and one additional 500-, 600-, or 700-level English course of their choosing. In selecting these courses, students must be sure to meet the following distribution requirements:

1. Two courses in literature written before 1800: either two advanced courses (numbered 600 or above), or one advanced course and ENGL 513.
2. Two courses in literature written since 1800: either two advanced courses, or one advanced course and one course from the following list: ENGL 514, 515, or 516.

Students interested in majoring in English should consult Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313.

The English Literature Major

The English literature major has been developed for those students looking for a more focused study of literature, especially those who plan to go on to graduate school in English or other fields in the humanities. Its requirements have been designed to engage students in a sustained study of literature that explores the formal, historical, cultural, and theoretical dimensions of written texts.

These requirements are designed to strengthen students' knowledge of literary history and cultural contexts, forms of literary expression, and the interpretive questions that shape critical inquiry. Students in this program will develop a deep understanding and appreciation of literatures in English, including both British and American literatures, as well as literary traditions organized around other principles, such as postcolonial or African-American. The English literature major also encourages students to develop a higher proficiency in critical writing, in formulating and addressing complex problems, and in synthesizing research.

For the English literature major, students must complete a minimum of 40 credits of major coursework with a grade of C- or better, with the exception of ENGL 419, which must be completed with a grade of C or better. Additional requirements include two 500-level courses, one of which must be a survey course; ENGL 619; and ENGL 787. A minimum of six courses must be completed at the 600 level or higher. In selecting courses, students must be sure to meet the following distribution requirements (please note that, in many cases, a single course may satisfy a requirement in two or more categories):

1. Two courses in literature written prior to 1800: either two advanced courses (600 level and above) or one advanced course and ENGL 513.
2. Two courses in literature written since 1800: either two advanced courses or one advanced course and one of the following: ENGL 514, 515, or 516.
3. One American literature course at the 600/700 level.
4. One British literature course at the 600/700 level.
5. Two courses that investigate and question representations of identity (ENGL 517, 540, 555, 581, 585, 586, 681, 685, 690, 738, 739, 740, 775, or 777); genre, including film, with the exception of ENGL 533 (616, 618, 630, 631, 632, or 777); and/or theoretical positions (ENGL 713, 714). Other courses may count, when relevant and with prior written approval of the adviser.

Students interested in majoring in English Literature should consult Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313, or the director of the English Literature program.

The English Teaching Major

The English teaching major program leads to certification in middle- and secondary-level English teaching. It is an integrated, pre-service program designed to be completed in five years, a time-frame that assumes students also take summer courses. Students who complete the undergraduate component receive a B.A. degree in English teaching. Upon admission to the graduate school, students then work their way through graduate coursework. Most students earn certification at the end of the fifth year. Some earn the master's degree (either an M.A.T. or M.Ed. in Education) and a specialization in English teaching at that point as well, although many complete the degree during their first year of teaching. With or without the graduate degree, most students are certified and ready to look for teaching positions at the end of the fifth year.

The goal of the English teaching major is to prepare students as informed, thoughtful, and skilled English teachers who will become educational leaders in their schools and, more broadly, in the profession itself. To that end, the department seeks to make its pre-service teachers thoroughly familiar with the knowledge base available in the Departments of English and Education. From their courses within the English department, students learn what the study of English entails, from literature to linguistics, and how areas of knowledge and the abilities to read, write, and discuss can best be taught to students in grades 5-12. Pre-service teachers also acquire knowledge of certain content areas, such as American and British literature and English grammar. From their courses within the Education department, students learn about human development and learning, the history and structure of schools, and different philosophical perspectives on public education. Finally, through the year-long teaching internship, students apply their knowledge from both sources to actual practice. This requirement reflects a core belief that the opportunity to combine theory and practice is essential in preparing effective beginning teachers.

Completion of the undergraduate teaching major does not in itself meet state certification requirements. To meet these requirements, students should enroll in the undergraduate major and:

1. Pass the following English courses with an average of 2.5 or better: ENGL 419, 514, 516, 657, 725-726 or 710 and 792, 718 or 791, two additional literature courses numbered 600 or above, and any English department course in writing, linguistics, critical theory, film, or literature (except 401, 403, and 444). ENGL 513 may be substituted for one of the two required literature courses numbered 600 or above.

2. Apply for the fifth-year teaching internship and master's degree program by September 15 of their senior year.
3. Complete a writing portfolio.

Students interested in majoring in English teaching should consult Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313, or the director of the English Teaching program.

The English/Journalism Major

The English/journalism major combines the study of literature with the study of nonfiction writing and professional training for students considering writing or editing careers in print journalism or related fields. In their courses, students learn to practice all aspects of reporting and newswriting and to appreciate the mission of journalism while developing skills and attitudes that they can adapt to a wide range of careers upon graduation.

English/journalism majors must complete ENGL 419 with a grade of C or better and the literature requirements of the standard English major. These requirements include:

1. Two courses in literature written prior to 1800: either two advanced courses (600 level and above) or one advanced course and ENGL 513.
2. Two courses in literature written since 1800: either two advanced courses or one advanced course and one of the following: ENGL 514, 515, or 516.

In addition to the five required literature courses, English/journalism majors must take ENGL 501, Introduction to Creative Nonfiction, and earn a B or better to enroll in the first journalism course, ENGL 621, Newswriting. Students must also earn a B or better in Newswriting to continue on to the advanced journalism courses. They also are encouraged to write and edit for student publications such as *The New Hampshire* and *Main Street*. Beyond these requirements, English/Journalism majors must participate in at least one internship at a daily or weekly newspaper or magazine. A faculty member supervises the internships, which are central to the English/Journalism major, requiring students to work as reporters and editors.

Students interested in the English/journalism major should see Carla Cannizzaro, coordinator of the Department of English, 113 Hamilton Smith Hall, (603) 862-1313, or the director of the English/journalism program.

Writing Programs

The Department of English offers courses for students interested in becoming writers. Up to four consecutive creative writing workshops can be taken in fiction or in poetry, as well as a

course in form and theory of either genre. The instructors for these courses are professional writers. Interested students should inquire at the department office.

» [Click to view course offerings](#)

^ [back to top](#)

European Cultural Studies (ECS) ▼

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Coordinator: Carmen Garcia de la Rasilla

Core Faculty: Arna Beth Bronstein, Carmen Garcia de la Rasilla, Jeffrey M. Diefendorf, Marco Dorfsman, Patricia A. Emison, Robert W. Eshbach, Aleksandra Fleszar, Piero Garofalo, Eliga H. Gould, Nicoletta F. Gullace, Eleanor M. Hight, Aline M. Kuntz, Edward T. Larkin, Ronald D. LeBlanc, Claire-Lise Malarte-Feldman, Jaume Marti-Olivella, Catherine M. Peebles, Janet L. Polasky, Petar Ramadanovic, Mary E. Rhiel, Juliette M. Rogers, Ruth J. Sample, Robert C. Scharff, Rachel Trubowitz, Janet Aikins Yount

European Cultural Studies (ECS) is an interdisciplinary major in which students study the field of cultural analysis in conjunction with an individually designed focus on a European topic. Each student will work with an adviser and the ECS Steering Committee to design a course of study that best suits the student's interests and goals. The ECS major is driven in part by the belief that language is an integral part of culture and not merely a tool for the study of literature. By the same token, the study of European history, philosophy, politics, and so forth can only be enriched by the addition of critical perspectives developed in literature and language study.

The ECS major has five objectives:

1. It will introduce students to the major contours of European history, politics, languages, and arts.
2. It will introduce students to the social, political, economic, and cultural developments of the new unifying Europe.
3. The cultural studies component of the major highlights the contentious nature of this "unifying Europe." Thus the major will prepare students for work in fields related to Europe and European/American relations. More generally, it will encourage a nuanced perception of cultural differences, which will in turn affect students' perceptions of themselves and others as

participants in an uneasily shared world.

4. Cultural studies skills will facilitate and enable students to consider the past not just as an academic subject but as an unfolding inherited tradition.

5. A B.A. in European cultural studies will be a preparatory degree for graduate study in numerous fields from international relations to the humanities.

European Cultural Studies Major

The ECS major consists of 40 credits to be distributed in the following way:

1. Course on Europe (ECS 400). Course on European topics, covering art, literature, history, political science or other domains (4 credits).
2. Course on cultural studies (ECS 500). Introduction to the field of Cultural Studies as applied to the study of Europe. In years when ECS 500 is not offered, students may take ENGL 619, Critical Approaches to Literature; or HIST 625, Intellectual European History (4 credits).
3. Foundation Courses (8 credits):
 - a. Languages: 504 or equivalent in a European language or an approved alternate course.
 - b. Arts/Humanities or Social Sciences: One course from the following offerings: ARTS 580 or 581 (Survey of Art History), ENGL 651 or 652 (Comparative Literatures, when inclusive of European literatures), Humanities 501, 502, 503 (when focused on European topics), Music 402 (Survey of Music History), ECON 630 (Comparative Study of Economic Systems), HIST 435 or 436 (Western Civilization), HIST 565 (Women in European History), HIST 650 (European Socialism), HIST 656 (20th Century Europe), POLT 550 (Major Foreign Governments), POLT 552 (Contemporary European Politics).
4. Focus Courses: The focus portion of the major consists of an individually designed grouping of four courses that allows students to pursue their interests and will give coherence to the major. Students will discuss their proposed curriculum with an ECS adviser and submit a proposal to the ECS Steering Committee. Possible foci include: European art and identity; politics and culture in modern Europe; history of European science and philosophy; focus by nation. At least two courses for the focus must be at the 600-level or higher (16 credits).
5. Course on Critical Methods in Cultural Studies (ECS 550) prepares student for research and writing techniques needed to complete the senior thesis. (4 credits).

6. Senior Thesis (ECS 798/799). Students will work together with their advisers to formulate their topic, consider appropriate approaches, locate relevant resources and write a thesis. At the end of the semester, students present their work to a committee of three ECS faculty members (4 credits).

European Cultural Studies Minor

The minor in European cultural studies consists of 20 credits (five courses), including ECS 400, 500, 504-level in a European language, two foundation courses, and one elective.

» [Click to view course offerings](#)

^ [back to top](#)

French (FREN) ▼

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Professor: Barbara T. Cooper, Claire-Lise Malarte-Feldman

Associate Professor: Nadine S. Bérenguier, Juliette M. Rogers

Senior Lecturer: Claire-Helene Gaudissart, Anna K. Sandstrom

Lecturer: Emilie Talpin

The French Major

The French major offered by the **Department of Languages, Literatures, and Cultures** provides knowledge of the language, literature, and culture of France and other French-speaking countries around the world. An undergraduate major in French is useful in a variety of careers, such as business, law, government or public service, and teaching. Students considering a career in teaching should consult with the Department of Education. In addition, they should include LING 505 (which also satisfies a general education requirement for group 7) in their overall program and make special note of the LLC 791 requirement (which does not count toward completion of a major in French). Students interested in other types of careers are urged to consult with members of the French faculty and with other appropriate departments early in their studies.

A major consists of 40 credits in courses numbered 631 or above, in which readings are in French. Coursework for the French major must be completed with a grade of C or better. Majors are required to take FREN 631-632, 651, 652, 790, and at least two 700-level literature courses at the Durham campus. Students are required to enroll in at least one course each

semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed study abroad program in Dijon is highly recommended. It offers both year-long and spring semester programs. Only in exceptional circumstances will a student be able to attend a non-UNH program. Such an option will need to be carefully considered with a major advisor. Transfer students must earn a minimum of 12 major credits at the Durham campus. Of these 12 credits, one course must be FREN 790 and at least one 700-level course in French/Francophone literature. To complement their major, students are strongly encouraged to take either HIST 647 or 648 and courses in the literature of other countries as well as in fields such as music, art, philosophy, history, political science, and sociology that provide insight into nonliterary aspects of culture.

The French Studies Major

This major gives students a variety of perspectives not only on French culture but also on Francophone cultures worldwide. A major in French studies prepares graduates to negotiate successfully the economic reality of an increasingly international job market, and provides them with a wide range of career prospects after they leave the University.

The major consists of 44 credits in French courses numbered 631 or above and of cross-listed courses in other departments, including the following requirements: FREN 631-632, 651, 652, 675 or 676 or 677, 790, and two 700-level courses in French or Francophone literature. In addition, at least three elective courses (12 credits) closely related to French and Francophone cultural studies are required. These are to be chosen in consultation with a faculty advisor from among the following departments: history, geography, or anthropology, one 600- to 700-level course; art history or music, one 600- to 700-level course; economics, political science, or education, one 600- to 700-level course. Coursework for the French Studies major must be completed with a grade of C or better. Students are required to enroll in at least one course each semester in their major program and to spend at least one semester abroad in a French-speaking country. The UNH-managed study abroad program in Dijon is highly recommended. It offers both year-long and spring semester programs. Other options are available, but non-UNH programs must be chosen in close consultation with a major advisor. Transfer students must earn a minimum of 12 credits on the Durham campus. Of these 12 credits, one course must be FREN 790 and at least one 700-level course in French/Francophone literature.

The French Minor

A minor in French consists of 20 credits in French courses numbered 503 and above. No fewer than three courses have to be taken at UNH. No more than one course conducted in English (e.g., FREN 525, 526, 527, 621, 622) will be counted toward the minor, although students may elect to take more than one such course provided they earn more than 20 credits. Those entering the minor at FREN 504 or higher will be expected to complete FREN 651 or 652. LLC

791 does not count for the minor. Members of the department supervise the work of both majors and minors.

The French Studies Minor

The minor in French studies consists of 20 credits numbered FREN 503 or above. No fewer than three courses have to be taken at UNH. No more than one course conducted in English (FREN 525, 526, 527, 621, 622) will be counted toward the minor. Students entering the minor at FREN 504 or higher will be expected to complete FREN 651 or 652. LLC 791 does not count toward the minor. Members of the department supervise the work of both majors and minors.

Study Abroad in Dijon

The department offers a junior year and spring semester abroad at the University of Burgundy in Dijon, France (see FREN 690). This program is open to all qualified students at the University of New Hampshire who have completed, with a grade of B- or better, FREN 631-632 and FREN 651-652 by the end of the semester preceding their departure. Early consultation with the director of the program is urged. Non-credit orientation meetings are required during the semester prior to departure.

Study Abroad in Brest

In addition to its summer school offerings at the Durham campus, the department sponsors a program at the Centre International d'Études des Langues (CIEL) in Brest, France, where students may enroll in courses equivalent to FREN 503, 504, 631, 632, and 635, and above as well as an introductory course in business French. Students interested in this program should consult the program's on-campus director early in the spring semester. This program is open to majors, minors, and other interested students.

Study Abroad in Paris

Students attend the University of Delaware program in Paris where they take one French language course—ranging from intermediate (FREN 503) to advanced (FREN 632)—and three or four other courses taught in English on French topics. Two courses can be applied toward the French or French studies minor. Students should consult with the program director at the beginning of the fall semester. This program is not for French majors or French Studies majors.

Teaching Assistantship in France

Each year the French government offers teaching assistantships in a French secondary school to graduating French majors. Applications are accepted during the fall semester.

Five-Year Program in French and Business Administration

This program permits students to earn both a B.A. in French and an M.B.A. in five years.

Students must meet all requirements for both the French major and the M.B.A. program offered by the Whittemore School of Business and Economics. Students interested in this program should consult with the departmental adviser to the program early in their freshman year.

» [Click to view course offerings](#)

^ [back to top](#)

Geography (GEOG) ▼

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Chairperson: Blake Gumprecht

Professor: Alasdair D. Drysdale

Research Professor: Richard K. Ormrod

Associate Professor: Blake Gumprecht

Assistant Professor: David Brown, Joel Hartter

Instructor: Mary D. Stampone

Geography is best defined as the discipline that describes and analyzes the variable character, from place to place, of the Earth as the home of human society. As such, geography is an integrating discipline, studying many aspects of the physical and cultural environment that are significant to understanding the character of particular places and regions. Geography aims to provide students with a basis for understanding the world in which we live.

Because its integrating character establishes common areas of interest with many other fields of knowledge, geography provides an excellent core discipline for a liberal education. Those who would understand geography must also know something of the Earth sciences, as well as economics, cultures, politics, and processes of historical development.

Students who have a strong interest in the spatial organization of the world and the distinctive character of its major regions and who also want a broad educational experience can achieve these goals effectively by majoring in geography.

Students with degrees in geography have found their education valuable in such fields as urban and regional planning, locational analysis for industry and marketing organizations, cartography, geographical information systems (GIS), library work, military intelligence, international studies, the Foreign Service, travel and tourism, and journalism.

Students planning careers as scholars or teachers in the field should concentrate their

coursework in geography and appropriate related disciplines and should plan to go on to graduate study after completing an undergraduate major in geography. Students from this department have been admitted to first-rate graduate schools in all parts of the United States.

Students who major in geography are required to take 10 courses with a minimum grade of C-.

Requirements for the major

To major in geography, the following course requirements must be fulfilled with a grade of C- or better.

All of the following core courses

GEOG 401, Regional Geography of the Western World

GEOG 402, Regional Geography of the Non-Western World

GEOG 572, Physical Geography

GEOG 581, Human Geography

GEOG 658, Introduction to Geographic Information Systems

and

Any five additional geography courses.

Students who receive more than two grades below C- will be excluded from the program. No course may fulfill both a geography requirement and a general education or Discovery requirement.

The foreign language requirement may be met in any of the following: French, Italian, Spanish, Portuguese, German, Russian, Chinese, Japanese, Arabic, Latin, or Greek. Other languages may be considered by petition.

Students interested in majoring or minoring in geography should consult with the chair, Blake Gumprecht.

» [Click to view course offerings](#)

^ [back to top](#)

German (GERM) ▼

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Professor: Edward T. Larkin

Associate Professor: Roger S. Brown, Mary E. Rhiel

Lecturer: Johannes T. Frank

The German major is offered by the **Department of Languages, Literatures, and Cultures**.

This program is of interest to the following groups of students:

- Those who have a special interest in the German language, literature, and culture.
- Those who intend to enter fields in which a background in foreign languages and literatures is desirable, such as international business and law, trade, journalism, science, library science, government service, and international service organizations.
- Those who plan to teach German in secondary schools. Since most secondary schools require their teachers to teach more than one subject, students planning to enter teaching at this level should plan their programs carefully. They should combine a major in one of the languages and its literature with a minor or at least a meaningful sequence of courses in another subject. Dual majors also are possible. For certification requirements, see the section coordinator.

A major consists of 10 courses in German beyond German 402. Required for the major are GERM 503, 504, 525, 601, 631, 632 (or their equivalents) and four more courses which must be taken at the 600 or 700 levels. A grade of C- or better is required in all major coursework. Majors are required to spend a minimum of one semester in an approved German-speaking study abroad program, or equivalent. For students spending one semester abroad, three of the four upper-level courses are normally taken in Durham. For students spending an academic year abroad, two of the four upper-level courses are normally taken in Durham. GERM 791 does not count for major credit; 791 is recommended as an elective and required for teacher certification.

A minor consists of five courses in German numbered 503 and above. The minor may include one course taught in English (521, 523, 524, 525) but not 791.

Study Abroad

The University allows both German majors and minors and other students at levels beyond GERM 504 to attend approved study abroad programs for UNH credit. UNH is part of the New England Universities consortium (Maine, Vermont, Connecticut, and Rhode Island), which sponsors a program in Salzburg, Austria. UNH students get a discount on Salzburg program tuition and have an easy transfer of credits. Students also may attend other accredited semester or year programs at universities such as Berlin, Freiburg, Heidelberg, Innsbruck,

Marburg, Munich, Tübingen, or Vienna. Most study abroad programs require a minimum of two years of college German. For intensive language study at any level, students may attend Goethe-Institut centers in Germany for one or more four- or eight-week courses. For details, see the German coordinator or the foreign study coordinator in the Center for International Education. Students beyond the 504 level may also do an internship in a German firm or organization (see GERM 595). Financial aid applies to all approved programs.

» [Click to view course offerings](#)

^ [back to top](#)

Greek (GREK) ▼

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Associate Professor: Stephen Andrew Brunet, Robert Scott Smith, Stephen M. Trzaskoma

Senior Lecturer: Richard E. Clairmont

Lecturer: Susan Curry

The Greek major is offered by the Classics program of the **Department of Languages, Literatures, and Cultures**.

The minimum requirements for a major in Greek are 32 credits in Greek, including GREK 401-402. A Greek major must complete as a minimum a 700-level course in the Greek language. A minimum of three courses must be taken at the Durham campus. A Greek minor requires 20 credits of coursework in Greek. Students are encouraged to take courses in related fields such as Latin, classics, and ancient history, and to take part in overseas study programs in Greece. The coordinator is Stephen Brunet, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-2077; e-mail sabrunet@cisunix.unh.edu.

» [Click to view course offerings](#)

^ [back to top](#)

History (HIST) ▼

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Chairperson: Jan V. Golinski

Professor: Jeffrey M. Diefendorf, Ellen Fitzpatrick, David Frankfurter, Cathy A. Frierson, Jan V.

Golinski, J. William Harris, Janet L. Polasky

Affiliate Professor: Stephen H. Hardy, Benjamin Harris

Associate Professor: Funso Afolayan, David Bachrach, W. Jeffrey Bolster, Kurk Dorsey, Eliga H. Gould, Nicoletta F. Gullace, Yan Lu, Gregory McMahon, Julia E. Rodriguez, Lucy E. Salyer, Cynthia J. Van Zandt, Ethel Sara Wolper

Affiliate Associate Professor: Robert L. Macieski

Assistant Professor: Marion Girard Dorsey, Jessica M. Lepler, Elizabeth W. Mellyn

Research Assistant Professor: Judith N. Moyer

Lecturer: Jonathan B. Couser

The study of history is an essential element of the liberal arts education. The history major provides both an awareness of the past and the tools to evaluate and express one's knowledge. The student who majors in history will have the opportunity to study the breadth of the human past and will acquire the skills in critical reading and writing that form the foundation of the educated life. The study of history may include all of human culture and society and provides tremendous latitude in the subjects that may be studied. The interdisciplinary nature of the field makes it a natural focus for study that may encompass a variety of other fields.

To complete a major in history, students must take 10 four credit history courses or their equivalent. Students who enter the University as history majors or who declare a major in history should take the first required course, HIST 500 (Introduction to Historical Thinking), as soon as possible. To declare a major in history, students must have completed two history courses with a grade of C- or better. HIST 500 is a prerequisite for the second required course, HIST 797 (Colloquium in History), which is usually taken during the senior year. Students should consult the list of topics for HIST 797 and may choose to complete HIST 797 in their junior year. Besides HIST 500 and HIST 797, a major must take at least eight courses, of which a minimum of three must be at the 600 level or above. Only one HIST 695 (Independent Study) may be used to fulfill the 600-level requirement, and no more than two independent study courses may count toward the ten-course requirement. No more than two 400-level courses may be counted toward the major requirements. Students must receive at least a C in HIST 500, and at least a C- in the other nine courses. Majors must maintain a 2.0 or better in all history courses. General education courses offered by the department may be counted for major credit or for general education credit, but not for both.

History majors must satisfy the language requirement for the B.A. degree in an international language that they could use for historical research. That list includes: Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. Students may petition the department curriculum committee for exceptions.

A student's program of study must include two parts:

1. An area of specialization. A student must select at least four courses to serve as an area of specialization within the major. Up to two courses (each four credits or their equivalent) in the area of specialization may be taken in other departments; such courses must be 500-level or above and have the approval of the student's adviser. The area of specialization may be in a nation, region, a time period, or an interdisciplinary field.

2. Complementary courses. A student must select, in consultation with his or her adviser, at least three history courses in fields outside the area of specialization, chosen to broaden his or her understanding of the range of history. Normally, each major should take at least one course from each of Groups I, II, and III, unless explicitly excused by his or her adviser.

The program must be planned in consultation with an adviser. A copy of the program, signed by the adviser, must be placed in a student's file no later than the second semester of his or her junior year. Courses at the 700-level will be judged by the adviser as to their applicability for area of specialization or complementation. The program may be modified with the adviser's approval.

For transfer students, a minimum of five of the semester courses used to fulfill the major requirements must be taken at the University. One upper-level course may be transferred to satisfy the requirement that a major must take at least three courses numbered 600 or above. Transfer students must complete both HIST 500 or its equivalent and HIST 797.

A minor in history consists of 20 semester credits with C- or better and at least a 2.0 grade-point average in courses that the Department of History approves. Courses taken on a pass/fail basis may not be used for the minor. No more than 12 credits in 400-level courses may be used for this minor. For transfer students, a minimum of two of the semester courses, or eight credits, must be taken at the University of New Hampshire with a grade of C- or better.

Students intending further work in history beyond the bachelor's degree are urged to take HIST 775, Historical Methods.

Students intending to major in history should consult with the department secretary in Horton 405. Suggested programs for students with special interests or professional plans are available in the department office.

Undergraduate Awards for Majors

The Philip M. Marston Scholarship, an award of \$500, is available to students who are interested in colonial or New England history and have demonstrated financial need. There are

course requirements for this scholarship. More details are available from the history office.

Each spring, the members of the departmental undergraduate committee choose history majors to receive the following prizes in history:

The William Greenleaf Prize is given for the best senior colloquium paper. Award candidates must have a minimum grade-point average of 3.2 in history courses. Individuals may nominate themselves or may be nominated by faculty members.

The Allen Linden Prize for the best senior history thesis is funded by the Signal Fund.

The Charles Clark Prize is for the best essay or research paper submitted by a history major and is funded by the Signal Fund.

Phi Alpha Theta, the history honor society, is an international scholastic organization dedicated to promoting historical study on the undergraduate and graduate levels. Admission to the UNH Psi Pi chapter is open to undergraduates with an overall grade-point average of 3.0 and a grade-point average of 3.1 or better in history courses.

» [Click to view course offerings](#)

^ [back to top](#)

Humanities (HUMA) ▼

» <http://www.unh.edu/humanities-program>

» [Click to view course offerings](#)

Coordinator: Catherine M. Peebles

Professor: Patricia A. Emison, Michael K. Ferber, Jan V. Golinski, Charlotte Elizabeth Witt

Associate Professor: Warren R. Brown

Lecturer: Catherine M. Peebles

Core Faculty: Roger S. Brown, Willem A. deVries, Marco Dorfsman, R. Valentine Dusek, Robert Haskins, David R. Hiley, John R. Kayser, Edward T. Larkin, Ronald D. LeBlanc, Gregory McMahon, Petar Ramadanovic, David M. Richman

The humanities program examines the fundamental questions and issues of human civilization. Through studying diverse texts in the arts, music, literature, history, philosophy, and science, students seek answers to questions that thoughtful human beings must address in the course of their lives. Whether these questions come from Socrates (What is justice?), from Sir Thomas

More (What is obligation to God?), from Raphael (What is beauty?), from Newton (What are the laws of nature?), or from Martin Luther King, Jr. (What is freedom?), they direct our attention to enduring human concerns and to texts that have suggested or illustrated the most profound and powerful answers.

Humanities Major

The humanities major consists of a minimum of 40 credits of academic work, with a minimum grade of C, including the following core requirements:

Critical Methods in the Humanities (HUMA 500). Students will be made acquainted with the methods and technology required for research in the humanities. Students should take this four credit course during the sophomore or junior year.

Integrated Core Courses (HUMA 510, 511, 512, 513, 514, 515). Each student takes at least two courses (eight credits) from the 510-515 sequence, preferably in the freshman and/or sophomore year.

Seminar in the Humanities (HUMA 700). Each student takes at least one offering (four credits) of the Seminar in the Humanities, preferably during the junior or senior year. This seminar provides an opportunity for in-depth reading, viewing, and/or listening to texts and artifacts. The emphasis is on the multiple perspectives and methodologies that can be brought to bear upon these works from several humanistic disciplines.

Research Project in the Humanities (HUMA 798/799). Each student participates in the research seminar (for a total of four credits) throughout the senior year. The seminar provides a context within which students may discuss and receive directions in the course of completing a major research paper, the senior thesis. At the end of the second semester, students present their research to the faculty and their fellow students.

Additional Requirements. Beyond the 20 credits of core requirements, each student must fulfill the following requirements: 1) a minimum of eight additional credits from other humanities program courses; 2) an additional 12 credits from humanities program offerings and from the offerings of other departments and programs, with the advice and approval of each student's major adviser or the program coordinator. These offerings should bear some relation to the student's particular interests and senior research paper, as seems appropriate in each individual case.

Humanities Minor

The humanities minor consists of the following courses: 1) two courses (eight credits) from the

510/511/512/513/514/515 sequence; 2) two courses (eight credits) from other humanities program courses, one of which should be at the 600-level; and 3) seminar in the humanities (HUMA 700) or another approved course.

Inquiries about the humanities major and minor should be directed to Catherine Peebles, coordinator of the humanities program, G19 Murkland Hall, (603) 862-3638; e-mail huma@unh.edu.

» [Click to view course offerings](#)

^ [back to top](#)

International Affairs Dual Major ▼

For program description, see [Special University Programs](#).

^ [back to top](#)

Italian Studies (ITAL) ▼

» <http://www.unh.edu/italian>

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Associate Professor: Piero Garofalo

Assistant Professor: Amy Boylan

Lecturer: Marie Dravasa, Darby Tench Leicht

The Italian studies minor is offered by the [Department of Languages, Literatures, and Cultures](#). It provides students with the opportunity to explore the language, culture, and society of Italy through an interdisciplinary program. The minor consists of five courses beyond the Elementary Italian (ITAL 401-402) sequence and may include one course from a related field of study (e.g., ARTS 681-682, ECS 400, HIST 641) with a minimum grade of C. In addition, students must demonstrate linguistic proficiency at the level of intermediate Italian (ITAL 504 or an equivalent).

The Italian studies minor is advantageous for applicants to graduate and professional schools in Italian, modern languages, linguistics, film, history, theater, philosophy, and law. It is also a valuable asset for careers in economics, international affairs, international business, fashion, teaching, communications, translation, interpretation, government, and Foreign Service.

New students will be assigned to the proper course in consultation with the section coordinator.

Study Abroad

Students may participate in the UNH-in-Italy Program in the medieval city of Ascoli Piceno for a semester, year, or summer (see ITAL 685). The program allows students to register for UNH courses taught by UNH faculty. Students with advanced language skills also may enroll in courses at the University of Ascoli Piceno. Internships are available. There is no language prerequisite.

» [Click to view course offerings](#)

^ [back to top](#)

Japanese (JPN) ▼

» <http://www.unh.edu/asian>

» [Click to view course offerings](#)

Lecturer: Pamela B. Ikegami

For program description, see [Languages, Literatures, and Cultures](#).

» [Click to view course offerings](#)

^ [back to top](#)

Justice Studies Dual Major (JUST) ▼

» <http://www.unh.edu/justice-studies/>

» [Click to view course offerings](#)

Coordinator: Ellen S. Cohn

Research Assistant Professor: Andrew M. Macpherson

Clinical Assistant Professor: Donna M. Perkins

Core Faculty: Victoria L. Banyard, John J. Cerullo, Drew Christie, Ellen S. Cohn, Todd A. DeMitchell, Elizabeth M. Dolan, Marion Girard Dorsey, Robert P. Eckstein, David Finkelhor, John T. Kirkpatrick, Michelle D. Leichtman, Alynna J. Lyon, Mary Malone, Donna M. Perkins, Charles T. Putnam, Cesar Rebellon, Lucy E. Salyer, Susan J. Siggelakis, Nicholas J. Smith, Murray A. Straus, James Tucker, Karen Van Gundy

The justice studies dual major program is an interdisciplinary area that blends topics from humanities departments (e.g., philosophy), social science departments (e.g., psychology, sociology, women's studies), departments that include both humanities and social science

faculty (history, political science), and professionally oriented departments (education, family studies, social work). Topics studied include courts, family violence, rights, substance abuse, juvenile justice, school law, children as witnesses, hate crimes, and community policing. Students will be required to choose a first major before they will be able to declare justice studies as a second major. The goal is to produce graduates who have a higher level of knowledge about law and justice in American society and in the world so that they will mature into more knowledgeable and effective citizens. The justice studies dual major is intended for students who are looking for careers in the justice system or who seek graduate training in law or social sciences and humanities related to the law.

Required Courses

The dual major in justice studies requires students to take a minimum of eight courses (32 credits), each completed with a grade of a C- or better. Students are required to have a grade-point average of a 2.5 or better before they can be accepted into the program. The dual major cannot be declared until after a first major has been declared. Students can count no more than two courses for both the first major and dual major and students are not allowed to take more than two courses from any one department (except for JUST). An unlimited number of dual major courses can be used to satisfy general education requirements.

JUST 401, Introduction to Justice Studies

JUST 501, Research Methods (prerequisite: a statistics course)

JUST 601, Internship (juniors/seniors only) or JUST 602, Research Internship (juniors/seniors only)

JUST 701, Senior Seminar (Writing Intensive Course)

And one of the following three courses

POLT 407, Law and Society

POLT 507, Politics of Crime & Justice

SOC 515, Introductory Criminology

Elective Courses

Students are required to select three elective courses from the Justice Studies approved course list. This list is approved and published yearly by the Justice Studies Executive Committee.

BIOL 420, Intro to Forensic Science

CD 717, Law of Community Planning (offered every other year)

CMN 698, Studying the Police

EDUC 767, Students, Teachers, and the Law

FS 772, International Approaches to Child Advocacy

FS 776, Children, Adolescents, and the Law
FS 794, Families and the Law
HMP 734, Health Law
HIST 509, Law in American Life
HIST 600, Crime and Punishment in Modern History
HIST 609, Special Topics: American Legal History
HIST 645, 19th Century European Great Powers—Diplomacy and International Law
HMGT 625, Hospitality Law (only HMGT majors allowed)
HMGT 627, Employment Law
HUMA 650, Humanities and the Law: The Problem of Justice in Western Civilization
INCO 404F, Medicine and Law in the United States
JUST 401, Introduction to Justice Studies (required course)
JUST 405, Technology, Crime & Society
JUST 501, Research Methods (required course; prerequisite: a statistics course)
JUST 550/551, Mock Trial (must take year-long course)
JUST 601/602, Internship/Research Internship (required course)
JUST 650/651, Budapest Study Abroad
JUST 695, Special Topics in Justice Studies (no more than two courses)
JUST 701, Senior Seminar (required course, writing intensive course)
JUST 767, Students, Teachers, and the Law
JUST 795, Reading and Research (variable credit)
KIN 798, Sports Law
MGT 647, Business Law (only Business Administration, Accounting, and Business Administration and Management allowed)
MGT 648, Business Law II
NR 566, Wildlife Enforcement I
NR 718, Law of Natural Resources and Environment
PHIL 436, Social and Political Philosophy
PHIL 635, Philosophy of Law
PHIL 660, Law, Medicine, and Morals
PHIL 701, Value Theory
PHIL 730, Theories of Justice
PHIL 740, Advanced Topics in Philosophy of Law
POLT 407, Law and Society
POLT 507, Politics of Crime and Justice
POLT 508, Supreme Court and the Constitution
POLT 513, Civil Rights and Liberties
POLT 520, Justice and the Political Community
POLT 568, Intro to Intelligence (only when taught by Professor MacPherson)

POLT 660, Terrorism and Political Violence
POLT 701, The Courts and Public Policy
POLT 707, Criminal Justice Administration
POLT 708, Administrative Law
PSYC 591, Forensic Psychology
PSYC 755, Psychology of Law (Research Methods Prerequisite)
PSYC 756, Psychology of Crime and Justice (Research Methods Prerequisite)
PSYC 791, Advanced Topics: Psychology of Hate and/or Psychology of Delinquency
RMP 772, Law and Public Policy in Leisure Services (must have junior/senior status)
SOC 515, Introductory Criminology
SOC 525, Juvenile Crime and Delinquency
SOC 535, Homicide
SOC 620, Drugs and Society
SOC 650, Family Violence (must have junior/senior status)
SOC 655, Sociology of Law and Justice
SOC 697, Special Topics: Perspectives on Terrorism
SOC 715, Criminological Theory
SOC 720, Sociology of Drug Use
SOC 780, Social Conflict
SOC 797, Special Topics: Crime and Justice
SW 525, Introduction to Social Welfare Policy
WS 595, Special Topics: Violence Against Women

Students who are interested in a dual major in justice studies will need to file an Intent to Dual Major form. The form is available in the Justice Studies Office or can be downloaded from the program Web site at www.unh.edu/justice-studies. Program offices are located in Room 202 of Huddleston Hall and are open Monday through Thursday from 8:30 a.m. to 12 p.m. and 1 p.m. to 4 p.m and Friday 9 a.m. to 12 p.m. and 1 p.m. to 4 p.m. For more information please contact Ellen Cohn at (603) 862-3197, e-mail ellen.cohn@unh.edu; or Debbie Briand at (603) 862-1716, e-mail justice.studies@unh.edu.

For program information on the justice studies minor, see [Interdisciplinary Programs](#).

» [Click to view course offerings](#)

^ [back to top](#)

Languages, Literatures, and Cultures (LLC) ▼

» <http://www.unh.edu/lc>

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Chairperson: Piero Garofalo

Professor: Barbara T. Cooper, Janet Gold, Edward T. Larkin, Ronald D. LeBlanc, Claire-Lise Malarte-Feldman

Associate Professor: Nadine S. Béranguier, Arna Beth Bronstein, Roger S. Brown, Stephen Andrew Brunet, John M. Chaston, Carmen Garcia de la Rasilla, Marco Dorfsman, Aleksandra Fleszar, Piero Garofalo, Lori Hopkins, Lina Lee, Jaume Marti-Olivella, Mary E. Rhiel, Juliette M. Rogers, Robert Scott Smith, Stephen M. Trzaskoma

Assistant Professor: Amy Boylan, Holly R. Cashman

Affiliate Faculty: Richard C. House

Senior Lecturer: Mary Kathleen Belford, Richard E. Clairmont, Claire-Helene Gaudissart, Anna K. Sandstrom, Elisa F. Stoykovich, Linda J. Thomsen

Lecturer: Susan Curry, Marie Dravasa, Johannes T. Frank, Sarah E. Hirsch, Pamela B. Ikegami, Darby Tench Leicht, Catherine M. Peebles, Cindy Pulkkinen, Maria I. Rossi, Jose Sanchez, Emilie Talpin

The Department of Languages, Literatures, and Cultures offers undergraduate majors in Classics, French, French Studies, German, Greek, Latin, Russian, Spanish, and European Cultural Studies, plus a minor in Italian and coursework in Arabic, Chinese, Hittite, Sanskrit, Japanese, and Portuguese. A combined B.A. in French/M.B.A. degree and an M.A. in Spanish also are offered.

In addition, the department sponsors several study abroad programs and a variety of co-curricular activities, including conversation hours and language clubs.

A B.A. degree at the University requires the fulfillment of a foreign language requirement. Students must fulfill this requirement by the end of their sophomore year. Please see the [Bachelor of Arts Degree Requirements](#).

Undergraduates who choose to pursue a major or minor in the Department of Languages, Literatures, and Cultures may wish to consider complementing their studies with the dual major in International Affairs, with the teacher education program, or with any of the other majors and minors available through the University of New Hampshire. Such coursework will not only broaden a student's intellectual horizons, but may also serve to enhance his or her employment opportunities or prospects for graduate education.

» [Click to view course offerings](#)

^ [back to top](#)

Latin (LATN) ▼

» <http://www.unh.edu/classics>

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Associate Professor: Stephen Andrew Brunet, Robert Scott Smith, Stephen M. Trzaskoma

Senior Lecturer: Richard E. Clairmont

Lecturer: Susan Curry

The Latin major is offered by the classics program of the [Department of Languages, Literatures, and Cultures](#).

The minimum requirements for a major in Latin are 32 credits in Latin, excluding LATN 401-402. A Latin major must complete as a minimum a 700-level course in the Latin language. A minimum of three courses must be taken at the Durham campus. A Latin minor requires 20 credits of coursework in Latin. Students are encouraged to take courses in related fields such as Greek, classics, and ancient history, and to take part in overseas study programs in Italy. The coordinator is Stephen Brunet, Murkland Hall; Languages, Literatures, and Cultures, (603) 862-2077; e-mail sabrunet@cisunix.unh.edu.

» [Click to view course offerings](#)

^ [back to top](#)

Linguistics (LING) ▼

» <http://www.unh.edu/linguistics/>

» [Click to view course offerings](#)

Coordinator: Mary Morris Clark

Senior Lecturer: Richard E. Clairmont

Core Faculty: Thomas A. Carnicelli, Holly R. Cashman, Mary Morris Clark, Willem A. deVries, Aleksandra Fleszar, Piero Garofalo, Mardi J. Kidwell, Lina Lee, Rochelle Lieber, Gregory McMahon, Paul McNamara, Christina Ortmeier-Hooper, Danielle Pillet-Shore

Linguistics is the study of one of the most important characteristics of human beings—language. It cuts across the boundaries between the sciences and the humanities. The program is an excellent liberal arts major or preprofessional major for education, law, medicine, clergy, and others. It is a particularly appropriate major for students who want to teach English as a second language. Dual majors with a foreign language, international affairs, business administration, and the like are quite feasible.

Students interested in the major or the minor should consult with the program coordinator or with any professor who teaches linguistics courses. To declare a major in linguistics, a student must meet with the linguistics coordinator to design a course of study. Information is available from the Advising Center, Hood House, and at www.unh.edu/linguistics.

A minor in linguistics also is available and consists of any five linguistics courses, including LING 405 or ENGL 405, approved by the linguistics coordinator.

Requirements for the Major

All of the following

LING 405, Introduction to Linguistics

LING 605, Intermediate Linguistic Analysis

LING 793, Phonetics and Phonology

LING 794, Syntax and Semantic Theory

One course in historical linguistics

CLAS 506, Introduction to Comparative and Historical Linguistics

ENGL 752, History of the English Language

GERM 733, History and Structure of the German Language

ITAL 733, History of Italian

RUSS 733, History and Development of the Russian Language

SPAN 733, History of the Spanish Language

Two years college study (or equivalent) of one foreign language

One of the following cognate specialties

One year college study (or equivalent) of a second foreign language from a different language family or subfamily (Old English may count as the second foreign language if the first foreign

language is not in the Germanic family)

PSYC 712, Psychology of Language (with its prerequisite, either PSYC 512, Psychology of Primates, or PSYC 513, Cognitive Psychology)

CS 765, Introduction to Computational Linguistics (Requires permission from the professor. Knowledge of LISP, SCHEME or PERL programming languages required)

Two elective courses from the list below

Anthropology: 670, Language and Culture; 795, 796, Reading and Research in Anthropology;
B. Anthropological Linguistics

Communication: 572, Language and Social Interaction; 583, Gender and Communication; CMN 666, Conversation Analysis; 672, Theories of Language and Discourse

Communication Sciences and Disorders: 522, The Acquisition of Language; 738, Linguistics of American Sign Language; 775, Advanced Language Acquisition

Computer Sciences: 765, Introduction to Computational Linguistics

English: 444B, The Secret Lives of Words; 444F, Language Matters in America; 715, TESL: Theory and Methods; 716, Curriculum, Materials, and Assessment in English as a Second Language; 717, World Englishes; 718, English Linguistics and Literature; 719, Sociolinguistics Survey; 727, Issues in Second Language Writing; 752, History of the English Language; 790, Special Topics in Linguistics; 791, English Grammar

LLC: 791, Methods of Foreign Language Teaching

German: 733, History and Structure of the German Language

Italian: 733, History of Italian

Latin: 795, 796, Special Studies in Latin (when topic is appropriate)

Linguistics: 444B, The Secret Lives of Words; 444F, Language Matters in America; 620, Applied Experience in Linguistics; 717, World Englishes; 719, Sociolinguistics Survey; 790, Special Topics in Linguistics; 795, 796, Independent Study

Philosophy: 550, Symbolic Logic; 618, Recent Anglo-American Philosophy; 650, Logic: Scope and Limits; 745, Philosophy of Language

Psychology: 512, Psychology of Primates; 513, Cognitive Psychology; 712, Psychology of Language. (Students may count either PSYC 512 or 513 toward the linguistics major or minor, but not both.)

Russian: 733, History and Development of the Russian Language

Spanish: 641, Spanish Phonetics; 645, Introduction to Spanish Linguistics; 733, History of the Spanish Language; 790, Grammatical Structure of Spanish

Capstone Experience

Either LING 779, Linguistic Field Methods, or LING 695, Senior Honors.

Other courses may be substituted, with the permission of the student's adviser and the Linguistics Committee, when they are pertinent to the needs of the student's program.

» [Click to view course offerings](#)

^ [back to top](#)

Music (MUSI) ▼

» <http://www.unh.edu/music/>

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Chairperson: Robert Stibler

Professor: Andrew A. Boysen, Christopher Kies, Nicholas N. Orovich, David K. Ripley, David E. Seiler, Robert Stibler, Peggy A. Vagts

Affiliate Professor: Clark Terry

Associate Professor: Michael J. Annicchiarico, Daniel Beller-McKenna, Jenni Carbaugh Cook, Mark S. DeTurk, Lori E. Dobbins, Robert W. Eshbach, William G. Kempster, Peter W. Urquhart, Larry J. Veal

Assistant Professor: Elizabeth Gunlogson, Robert Haskins

Senior Lecturer: Arlene P. Kies

Lecturer: Casey S. Goodwin

The Department of Music offers two degree programs: the bachelor of arts in music and the bachelor of music.

The University of New Hampshire Department of Music is an accredited institutional member of the National Association of Schools of Music. Prospective majors in music are advised to contact the department for information on acceptance into the major.

All music students must earn grades of C- or better in all required music and music education courses.

Bachelor of Arts Program

The bachelor of arts program offers students an opportunity to major in music within the liberal arts curriculum. This program is intended for those who wish to pursue the serious study of music and to acquire at the same time a broad general education; it is recommended for those considering the five-year undergraduate-graduate program in teacher education or graduate

study leading to the M.A. or Ph.D. degrees.

To be admitted formally to the B.A. program, students must give evidence of satisfactory musical training by taking an admission audition. Students enrolling in the B.A. Music Liberal Studies program—a program that stresses the development of skills in analysis, writing, and critical thinking about a wide variety of musics and their larger connections with history, culture, and society—are required to interview with one of the program faculty members. Students must declare music as a major before the beginning of the junior year, but it is highly recommended that they declare as early as possible, considering the large number of required courses.

The bachelor of arts degree is offered with four options: music liberal studies, performance study, music theory, and preteaching. Students wanting to declare theory as their option must submit a music portfolio in addition to an audition on their major instrument. The following courses are required of all students: Theory I, Ear Training I, and Functional Piano I (MUSI 471-472, 473-474, 475-476); Theory II, Ear Training II, and Functional Piano II (MUSI 571-572, 573-574, 575-576); History and Literature of Music (MUSI 501-502); one Advanced Music History (MUSI 703-715); and one course from MUSI 771 (Counterpoint), or MUSI 781 or 782 (Analysis: Form and Structure). Students will be given the opportunity to test out of MUSI 475-476 and MUSI 575-576. Additional requirements, grouped by option, are shown below.

B.A. students may use a maximum of eight ensemble credits toward graduation.

Option 1, Music Liberal Studies

Any combination of advanced theory and history (12 credits); performance and/or ensemble study, any combination from MUSI 536-564 or MUSI 736-764 inclusive and/or MUSI 441-464 inclusive (eight credits); and colloquium.

Option 2, Music Theory

Advanced theory (12 credits); performance study, any one of MUSI 536-564 or MUSI 736-764 inclusive (eight credits); conducting, MUSI 731 (two credits); ensemble study, any combination from MUSI 441-464 inclusive (four credits).

Option 3, Performance Study

Performance study, any one of MUSI 536-564 or MUSI 736-764 (16 credits; two credits per semester); conducting, MUSI 731 (two credits); ensemble study, any combination from MUSI 441-464 inclusive (eight credits). Voice students must also complete MUSI 520-521 (four credits).

Option 4, Music Preteaching

EDUC 500; conducting, MUSI 731-732; orchestration, MUSI 779; techniques courses, MUED 745-751 (nine credits); choral methods, MUED 741 (two credits); performance study, any one of MUSI 536-564, 736-764 (eight credits); ensemble study (eight credits). Of the eight credits in ensemble performance (MUSI 441-464) required during the course of study, it is expected that at least four credits will be from Concert Choir (MUSI 441), Symphony (MUSI 450), Wind Symphony (MUSI 452), Symphonic Band (MUSI 453), and/or Concert Band (MUSI 451). At least one credit of performance in a jazz ensemble (MUSI 460) and one credit of Marching Band (MUSI 454) are highly desirable. The music preteaching option is a part of the five-year undergraduate-graduate certification program (see Department of Education, page XX). The department also offers a four-year program leading to teacher certification, the bachelor of music in music education.

For all the options listed, a final project or a public performance is given during the senior year. For students in the music liberal studies option, there is a choice of completing a half recital or comparable final project; for those in performance study, a full recital; for students in the music theory option, a half lecture, half lecture-recital, or a half recital including at least one original composition; for those in the preteaching option, a half recital is required.

Bachelor of Music Program

The bachelor of music degree program is offered to students who wish to develop their talent in performance, composition, or music education to a high professional level. The program is recommended to those considering graduate study leading to the M.M. or D.M.A. degrees. The music education option is part of the undergraduate certification program (see the Department of Education).

To be admitted to the B.M. program, students must demonstrate a high degree of musical competence or significant creative ability during an audition or examination. Selection is made on the professional requirements appropriate to each option. Students must formally declare the B.M. as a degree program before the beginning of the sophomore year. Continuation into the upper level of the program is subject to review by the department faculty.

Three degrees are offered in the bachelor of music curriculum: Bachelor of Music in Music Education; Bachelor of Music in Performance; Bachelor of Music in Theory. Students wanting to declare theory as their option must submit a music portfolio in addition to an audition on their major instrument.

Students in music education must maintain an overall minimum 2.5 grade-point average at the

time of application for student teaching (February 15 of junior year). Techniques and methods courses must include MUED 745 (strings), 747 (woodwinds), 749 (brass), 751 (percussion), 741 (choral), and 765 (instrumental).

The Bachelor of Music program in Music Education leads to State of New Hampshire teacher certification in music, grades K-12 (cert. #612.13). New Hampshire also participates in a reciprocal agreement with many other states, the Interstate Certification Compact.

Regarding ensemble requirements for music education students: Of the eight credits in ensemble performance (MUSI 441-464) required during the course of study, it is expected that at least four credits will be from Concert Choir (MUSI 441), Symphony (MUSI 450), Wind Symphony (MUSI 452), Symphonic Band (MUSI 453), and/or Concert Band (MUSI 451). At least one credit of performance in a jazz ensemble (MUSI 460) and one credit of Marching Band (MUSI 454) are highly desirable.

Students in the Bachelor of Music in Music Education and the Bachelor of Music in Theory degree programs may use a maximum of eight ensemble credits toward graduation.

Students in the Bachelor of Music in Performance degree program are required to perform a junior recital.

All bachelor of music students are required to give a public performance during their senior year. For music education students, a half recital is required; for students in the performance option, a full recital is required; for those in theory, a full lecture, lecture-recital, or recital including at least one original composition is required.

The following courses are required of all Bachelor of Music students:

Theory I, Ear Training I, and Functional Piano I (MUSI 471-472, 473-474, 475-476); Theory II, Ear Training II, and Functional Piano II (MUSI 571-572, 573-574, 575-576); History and Literature of Music (MUSI 501-502); Conducting (MUSI 731); and one Advanced Music History (MUSI 703-715). Students will be given the opportunity to test out of MUSI 475-476 and MUSI 575-576. Additional requirements, grouped by option, are shown below.

Bachelor of Music in Music Education

MUED 741, choral methods; MUED 745-751, techniques and methods of the primary instrumental families; MUED 765, instrumental methods; MUED 790-791, elementary and secondary music education; MUSI 732, conducting; one course from MUSI 771, counterpoint or MUSI 781 or 782, analysis: form and structure; MUSI 779, orchestration; EDUC 500, exploring teaching, EDUC 694, supervised teaching/music; EDUC 700, 701, 705, and 751B,

performance study; any one of MUSI 536-564 or MUSI 736-764, inclusive (eight credits), ensemble study; MUSI 441-464, inclusive (eight credits, please refer to the paragraph about ensemble requirements for music education majors).

Bachelor of Music in Performance

Voice

MUSI 520-521, diction for singers; ITAL 401-402, GERM 401-402, or FREN 401-402 (eight credits); MUED 755, vocal pedagogy; MUED 741, choral methods; MUSI 713, the art song or MUSI 715, survey of opera; one course from MUSI 771, counterpoint, or MUSI 781 or 782, analysis: form and structure); MUSI 545/745, performance study (25 credits); ensemble study, MUSI 441-442, or 448 inclusive (eight credits). Group 5 general education requirement must be fulfilled with an intermediate level foreign language.

Piano

Two courses from MUSI 771, counterpoint; MUSI 781 or 782, analysis: form and structure; MUED 743, piano methods; MUSI 795E, piano literature (one or two credits); MUSI 795V, advanced piano pedagogy (two credits); one additional 700-level advanced music theory or one additional advanced music history, MUSI 703-715; MUSI 541/741, performance study (25 credits); MUSI 455, piano ensemble (four credits) and MUSI 441-464 inclusive (four credits).

All Other Instruments

One course from MUSI 771, counterpoint, or MUSI 781 or 782, analysis: form and structure; one methods class in the appropriate instrumental family, MUED 745-751 (two or three credits); one additional 700-level advanced music theory or one additional advanced music history, MUSI 703-715; performance study, MUSI 546-564/746-764 inclusive (25 credits); ensemble study, MUSI 448-460 and MUSI 463-464 inclusive (12 credits).

Bachelor of Music in Music Theory

GERM 401-402; MUSI 771-772, counterpoint; MUSI 781-782, analysis: form and structure; MUSI 775-776, composition; MUSI 777, advanced composition (six credits); MUSI 779, orchestration; one additional 700-level advanced music theory class; one additional advanced music history, MUSI 703-715; performance study, MUSI 541-564/741-764 inclusive (eight credits); ensemble study, MUSI 441-464 inclusive (four credits).

Minor in Music

All students minoring in music must complete a minimum of 20 credits of coursework in music, of which the following are required: MUSI 471-474 or MUSI 411-412; and MUSI 501-502, or MUSI 401 or 402 and 511.

» [Click to view course offerings](#)

^ [back to top](#)

Music Education (MUED) ▼

» [Click to view course offerings](#)

Philosophy (PHIL) ▼

» <http://www.unh.edu/philosophy/>

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Chairperson: Drew Christie

Professor: Willem A. deVries, R. Valentine Dusek, David R. Hiley, Robert C. Scharff, Duane H. Whittier, Charlotte Elizabeth Witt

Associate Professor: Drew Christie, Paul McNamara, Ruth J. Sample, Nicholas J. Smith, Timm A. Triplett

Senior Lecturer: Jennifer K. Armstrong

Each semester, detailed course descriptions are posted in the department office and on the department Web page.

Philosophy has always been at the heart of liberal education, deepening and enriching the lives of those who pursue it. The philosophy major provides students with the opportunity to confront a wide variety of questions, especially those that cannot be dealt with in the framework of other disciplines. Such questions include those about the ultimate nature of reality: Does God exist? Are minds distinct from bodies? Are there more things between heaven and Earth than are dreamed of in science? Other questions probe what it is to know: Do we know that material bodies external to our minds exist? What does it mean to justify a belief? Still other questions are about how we ought to act: What is a good person? Are there moral rules? How are they justified? Must we obey them?

Philosophy also concerns itself with other disciplines: What makes something a work of art? What distinguishes a scientific theory from a religious theory or myth? Is capitalism amoral? Is legal authority moral or political?

The Department of Philosophy offers a wide range of courses exposing students to the full

scope of philosophical activity. Grappling with major primary texts from the history of philosophy is an important emphasis of the program, for philosophy today is the continuation of a conversation that extends back to the ancient Greeks and the Vedic scriptures. Philosophy also always has wrestled with cutting-edge topics emerging in the current culture. Some recent examples are: What are the prospects for machines with mental lives? What are the implications of new views in cosmology? How do we handle the pressing ethical dilemmas brought on by emerging medical technologies, or by the historically unparalleled rate of destruction of the Earth's environment? Are gender and race socially constructed concepts rather than biological concepts?

Career Opportunities

Philosophy offers excellent training for a variety of careers by providing a unique combination of life-long skills: analytic and interpretive skills; critical reasoning skills; the enhanced capacity to detect problems and to solve them; excellence in oral and written presentation and defense of one's ideas; skill at asking probing and central questions about the ideas of others (as well as about one's own ideas); and skill at effectively understanding, organizing, and evaluating complex systems of thought.

Considering these skills, it is not surprising that philosophy majors score in the very top percentiles on the GRE, LSAT, and GMAT standardized exams. For example, in a recent GRE study, philosophy majors were ranked among the very top majors in their mean scores on the verbal, analytic, and quantitative components of the exam; in a recent LSAT study, philosophy majors had a higher mean score than even pre-law majors; and for recent GMAT tests, the mean score for philosophy majors exceeded that of any type of business major. Virtually no other major does this well on such a wide cross-section of standardized exams.

These results reflect the fact that the unique combination of skills acquired in philosophy, along with the breadth of subject matter reflected on, provide the philosophy major with an extremely adaptive and resilient mind-set. Philosophy provides superior preparation for a variety of vocational and professional endeavors, and perhaps more importantly, for being a professional.

The Philosophy Major

Majors must take a total of 10 philosophy courses. The following courses constitute a core required of all majors: PHIL 412, 500, 530, 570, 580, and one additional course in the history of philosophy (525, 571, 610, 616, 618, 620, or an approved seminar). Majors also must take two seminars (i.e., courses at the 700 level). Please note that a single course can satisfy multiple requirements for the major. Courses used to satisfy requirements for the major may be used to satisfy general education requirements. PHIL 495, 795, and 796 normally do not count toward fulfilling major requirement credits; exceptions may be granted by special permission.

Special-Interest Program

Students may add to the above major a special-interest program that is of value in planning for postgraduate education or entry into such areas as law, medicine, business, education, theology, or social work. Special advisers are prepared to provide informal counsel to philosophy majors interested in these areas.

Graduate Preparatory Emphasis

This emphasis is strongly recommended for students who plan to do graduate work in philosophy. Beyond the 10 program courses, such students should select, with their advisers' approval, two additional philosophy courses above the 400 level, for a total of 12 courses. One of these should be PHIL 550.

Distinction on Senior Thesis

Distinction on Senior Thesis is granted by a unanimous determination of the student's committee that the thesis exceeds A level work and is worthy of special recognition.

Honors in Philosophy

To receive Honors in Philosophy, students will be expected to pursue a philosophy curriculum that demands greater depth and rigor than what is required by the major; they will be expected to complete the curriculum at a consistently high level of achievement; they will be expected to engage in independent study and research (under the supervision of a faculty member) beyond the requirements of their coursework; and they will be expected to present and defend a culminating project that synthesizes aspects of their study. Students can demonstrate these expectations in either of two ways: a thesis option or a portfolio option. Consult the Philosophy Department Web site for more details.

Philosophy Minor

A philosophy minor consists of five philosophy courses, one of which must be at the 500 level or higher (PHIL 495, 795, 796 with special approval only).

» [Click to view course offerings](#)

^ [back to top](#)

Political Science (POLT) ▼

» <http://www.unh.edu/political-science/>

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Chairperson: Dante J. Scala

Professor: Marla A. Brettschneider, Melvin J. Dubnick, Mark W. Huddleston

Affiliate Professor: Kenneth M. Johnson

Associate Professor: Warren R. Brown, John R. Kayser, Aline M. Kuntz, Alynna J. Lyon, Lawrence C. Reardon, Dante J. Scala, Susan J. Siggelakis, Andrew E. Smith, Stacy D. VanDeveer

Research Associate Professor: Charles T. Putnam

Affiliate Associate Professor: James Varn

Assistant Professor: Roslyn Chavda, Mary Malone, Jeannie L. Sowers

Affiliate Assistant Professor: Tom Kelly

Senior Lecturer: Lionel R. Ingram

Lecturer: Richard Aliano, Tama Andrews

The study of government and politics, to which the courses and seminars of the Department of Political Science are devoted, includes the development of knowledge of political behavior by individuals and groups as well as knowledge about governments: their nature and functions; their problems and behavior; and their interactions—at the national and international levels and at the local, state, and regional levels.

Much of the learning offered by the Department of Political Science also can be regarded as essential for good citizenship, since political knowledge helps to explain the formal and informal institutions by which we are governed and the forces that lead to policy decisions, and also seeks to clarify the issues and principles that encourage people toward political involvement. It contributes to the store of knowledge necessary for informed citizenship. In addition, such learning is especially valuable to students planning to enter local or national government or other public service, including the Foreign Service, and it will be of great help to those who intend to study law and enter the legal profession. For teaching, particularly at the college level, and for many types of government service, graduate work may be indispensable. An undergraduate major in political science will provide a helpful foundation for any further study of politics and related fields in the social sciences and humanities. Such an emphasis also will be valuable for students seeking careers in journalism, international organizations, and the public affairs and administrative aspects of labor, financial, and business organizations.

The major program in political science consists of at least 10 courses (40 credits) and not more than 12 courses (48 credits). The minimum grade requirement is C- per course. Any grade lower will not count toward major. Courses are to be distributed in the following way:

1. Three 400-level courses: 401, 402, and 403. Once they declare the major, students must

complete these three courses within the first calendar year.

2. Six 500- and/or 600-level courses. Of these, at least one shall be chosen from each of the four fields in which the department's courses are organized: American politics, political thought, comparative politics, and international politics.

3. One 700-level course. The Department of Political Science will allow the use of one 400-level course (401, 402, 403) to count toward both a major requirement and a general education requirement.

Minor in Political Science

The political science minor consists of five courses (20 credits total). These courses may be taken in any combination of the four fields and levels (400-700) offered. The fields to choose from are: American politics, political thought, comparative politics, and international politics. No more than two courses can be taken at the 400 level.

The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the minor. Students wishing to use transfer credits from abroad or other universities should meet with a political science adviser to determine eligibility toward the minor.

Internships and Advanced Study

In addition to the courses regularly offered, the department will have available selected topics, advanced study in political science, and internships. Interested students should check with the department office to learn about the offerings for a given semester.

The department also offers several internship opportunities that give students experience in various aspects of government, policy making, and the legal system at the local, state, and national levels. Student must have taken certain course prerequisites for each kind of internship. In addition, students must have junior or senior standing and normally have a 3.2 average or higher to be eligible for consideration. Washington placements are made either through the Department of Political Science or through the Washington Center located in the National Student Exchange Office in Hood House; major credit must be arranged through the department.

Political Science Language Requirement

The bachelor of arts degree at the University of New Hampshire requires that a student satisfy the foreign language proficiency requirement. The requirement may be met by demonstrating language proficiency equal to a one-year college-level course (401 and 402, 403 and 503, or 503 and above in spoken language).

The Department of Political Science does not allow American Sign Language (ASL) to count toward the language requirement effective for students who declare the major as of fall 2007.

Exceptions to this must be petitioned and approved by the Department of Political Science's Undergraduate Committee and a student's adviser.

» [Click to view course offerings](#)

^ [back to top](#)

Portuguese (PORT) ▼

» <http://www.unh.edu/spanish>

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For program description, see [Languages, Literatures, and Cultures](#).

» [Click to view course offerings](#)

^ [back to top](#)

Psychology (PSYC) ▼

» <http://www.unh.edu/psychology/>

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Chairperson: Robert G. Mair

Professor: Victoria L. Banyard, Victor A. Benassi, Ellen S. Cohn, Robert C. Drugan, Peter S. Fernald, Kenneth Fuld, Benjamin Harris, Robert G. Mair, John D. Mayer, Edward J. O'Brien, David B. Pillemer, Rebecca M. Warner, William R. Woodward

Associate Professor: J. Pablo Chavajay, Brett M. Gibson, Michelle D. Leichtman, Carolyn J. Mebert, William Wren Stine

Affiliate Associate Professor: Kathleen A. Kendall-Tackett, Julie E. Williams

Assistant Professor: Andrew B. Leber, Edward P. Lemay, Jill A. McGaughy

Research Assistant Professor: Lisa M. Jones, Kimberly J. Lema

Affiliate Assistant Professor: Zorana Ivcevic

Senior Lecturer: Mark J. Henn, Richard I. Kushner, Peter Yarensky

Lecturer: Robert P. Eckstein, Michael A. Mangan, Kelly Peracchi

The psychology major provides students with a broad education, while also allowing some specialization. The program exposes students to the scientific study of behavior and encourages an increased understanding of the behavior of humans and animals.

Students who wish to declare psychology as a major after enrolling in the University should consult with the department's academic counselor for application procedures and criteria.

Students majoring in psychology must complete 44 credits with a minimum grade of C- in each course and a 2.0 overall average in all major requirements. The psychology department does not accept other departments' statistics courses toward the psychology major. Students who have taken a statistics course other than PSYC 402 must pass a competency exam in order to apply to the major and/or register for PSYC 502. Students with a first major in psychology may not use PSYC 401 or 571 to fulfill general education requirements. Students may use PSYC 402, Statistics, for either the General Education Group II Quantitative Reasoning requirement or the major requirement, but not both. Students who use PSYC 402 for the general education requirement must take an additional psychology course that is eligible for major credit to replace PSYC 402 in the major. (PSYC 444 and 595 may NOT be used for this purpose.)

Requirements for the Major

A. Three core courses: PSYC 401, 402, and 502

B. Four breadth (500-level) courses as follows

Two courses from Group I

PSYC 511, Sensation and Perception

PSYC 512, Psychology of Primates

PSYC 513, Cognition

PSYC 521, Behavior Analysis

PSYC 531, Psychobiology

Two courses from Group II

PSYC 552, Social Psychology

PSYC 553, Personality Psychology

PSYC 561, Abnormal Behavior

PSYC 571, Pioneers of Psychology

PSYC 581, Child Development

PSYC 582, Adult Development and Aging

C. Four depth (700-level) courses as follows

Two courses from Group I

PSYC 702, Advanced Statistics (if not used in group II)

PSYC 705, Tests and Measurements (if not used in group II)
PSYC 710, Visual Perception
PSYC 712, Psychology of Language
PSYC 713, Psychology of Consciousness
PSYC 720, Animal Cognition
PSYC 722, Behaviorism, Culture, and Contemporary Society
PSYC 731, Brain and Behavior
PSYC 733, Drugs and Behavior
PSYC 735, Neurobiology of Mood Disorders
PSYC 737, Behavioral Medicine
PSYC 741, A-D Advanced Topics

Two courses from Group II

PSYC 702, Advanced Statistics (if not used in group I)
PSYC 705, Tests and Measurements (if not used in group I)
PSYC 755, Psychology and Law
PSYC 756, Psychology of Crime and Justice
PSYC 758, Health Psychology
PSYC 762, Counseling
PSYC 763, Community Psychology
PSYC 765, Dysfunctional Families and Therapy
PSYC 771, Psychology in 20th Century Thought and Society
PSYC 780, Prenatal Development/Infancy
PSYC 783, Cognitive Development
PSYC 785, Social Development
PSYC 791, A-G Advanced Topics
PSYC 793, Internship

Note: Most offerings have one or more prerequisite courses. Students (with the help of their advisers) are expected to select breadth courses that will later enable them to select depth courses appropriate to their interests and career goals.

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The distribution of these credits will be determined by the department's academic counselor. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major. Of the four 700-level courses required

for the major, at least three must be taken at UNH.

Specific course selections should be discussed with advisers. Exceptions to the requirements for the major require compelling circumstances and a petition to the department.

Psychology majors planning to go on to graduate study in psychology are advised to include PSYC 702 and/or 705 among their courses.

The minor in psychology consists of five psychology department courses (20 credits), including PSYC 401. No more than four credits of PSYC 795 may be applied to the minor. A maximum of nine approved psychology transfer credits can be applied to the UNH psychology minor.

See the department student services assistant for further details on the major or minor in psychology.

Advising System

Students who enter the University as psychology majors are considered “provisional majors” and are advised in the University Advising and Career Center through their freshman year. Provisional psychology majors are encouraged to complete PSYC 401 and 402 during their first year. During the summer after the freshman year, provisional psychology majors' advising files are transferred to the psychology department. Provisional majors then “confirm” their major in psychology during the fall semester of their sophomore year by attending a major orientation session scheduled by the department. “Provisional majors” are accorded all the rights and privileges of any psychology major. Undergraduate advising in the department is conducted jointly by the department’s academic counselor and the full-time faculty. The academic counselor has primary responsibility for advising confirmed and newly declared freshman and sophomore psychology majors and is the initial contact for all majors in a state of transition (readmitted, transfer, newly declared, etc.). The academic counselor assists students in all phases of educational planning and decisionmaking, including registration, long-range academic planning, degree and program requirements, and career selection and planning. Junior and senior psychology majors are assigned to a faculty adviser with appropriate consideration for student preferences. The advising relationship with a faculty member is designed to encourage refining career and educational decisions.

Undergraduate Awards for Majors

Each year the faculty chooses psychology undergraduates as the recipients of the following awards: the Herbert A. Carroll Award for an outstanding senior in psychology, the George M. Haslerud Award for an outstanding junior in psychology, and the Fuller Foundation Scholarship for an outstanding junior in psychology with demonstrated interests in clinical psychology.

Psychology majors with at least a 3.2 grade-point average are eligible for these awards. Faculty nominate students from the eligibility list and final selection of recipients is made by vote of the full-time psychology faculty.

Honors Program in Psychology

The Department of Psychology sponsors an honors program for outstanding students in the major. Students may apply to the honors program in psychology in their sophomore or junior year.

Eligibility criteria include

1. Overall grade-point average of 3.2 or above and 3.4 in major courses
2. Completion of PSYC 401, 402, and 502 with a grade of B or above in each

Requirements of the program include

1. Three 700-level psychology honors courses or equivalent
2. PSYC 797, Senior Honors Tutorial (fall)
3. PSYC 799, Senior Honors Thesis (spring)

Students interested in applying to the honors program should contact the department's academic counselor by the end of their sophomore year.

Undergraduate Research Conference

The Department of Psychology sponsors the annual George M. Haslerud Undergraduate Research Conference each spring. Undergraduate honors students present their theses at the conference. Contact the department's academic counselor for more information.

» [Click to view course offerings](#)

^ [back to top](#)

Religious Studies (RS) ▼

» [Click to view course offerings](#)

Russian (RUSS) ▼

» <http://www.unh.edu/russian>

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Professor: Ronald D. LeBlanc

Associate Professor: Arna Beth Bronstein, Aleksandra Fleszar

The Russian major provides students with an opportunity to study one of the world's most important languages, its literature, and its culture. In addition to the intrinsic value of Russian language, literature, and culture as a liberal arts experience, the Russian major leads to a number of careers, such as teaching, translation and interpreting, government, and the Foreign Service. It is also a valuable asset in preparing for careers in law, economics, and international trade, and it can serve as a double major with business administration, international affairs, the natural and physical sciences, and other liberal arts fields such as English, history, political science, sociology, philosophy, theatre, communication, linguistics, and other foreign languages.

New students will be assigned to the proper course after consultation with the Russian faculty. A student may not receive UNH credit for elementary Russian courses if he or she has had two or more years of secondary school Russian; however, a student may petition the Russian program to be admitted to the 400-level courses for credit. In the 503-790 range, a grade of C or better is required to advance to the next course in the language series (503, 504, 631, 632, 790).

The Russian major consists of a minimum of 40 credits above RUSS 504. Specific course requirements are RUSS 425, 521, 522, 601, 631-632, 691, and 790 and two or three electives, depending upon choice of option and concentration. Majors are required to spend a semester or summer on an approved study abroad program in Russia. Majors are required to take RUSS 631-632 and at least one 700-level Russian course at the Durham campus. Transfer students must earn a minimum of 12 major credits at the Durham campus.

The minor in Russian consists of a minimum of 20 credits above RUSS 402; it must include RUSS 503-504 and at least one of the following: RUSS 631, 632, 691, 721, 725, or 790.

Students wishing to major in Russian should contact the program coordinator in Murkland Hall 303.

Russian Studies Minor

The Russian studies minor offers students an opportunity to pursue area study of Russia and the new states through an interdisciplinary program. The minor consists of a minimum of 20 credits (five courses) with a minimum grade of C. In addition to the required courses and electives, students must demonstrate a Russian language proficiency at the level of RUSS 504 or an equivalent.

Students wishing to minor in Russian studies should consult with any faculty member in Russian studies.

» [Click to view course offerings](#)

^ [back to top](#)

Social Science (SCSC) ▼

» [Click to view course offerings](#)

Sociology (SOC) ▼

» <http://www.unh.edu/sociology/>

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Chairperson: Michele Dillon

Professor: Michele Dillon, Cynthia M. Duncan, David Finkelhor, Lawrence C. Hamilton, Kenneth M. Johnson, Murray A. Straus, Heather A. Turner, Sally Ward

Associate Professor: Benjamin C. Brown, Sharyn J. Potter, Cesar Rebellon, James Tucker, Karen Van Gundy

Research Associate Professor: Glenda Kaufman Kantor, Barbara A. Wauchope

Assistant Professor: Rebecca Glauber, Thomas G. Safford

Research Assistant Professor: Kristin E. Smith, Nina Stracuzzi, Wendy A. Walsh

Clinical Professor: John T. Kirkpatrick

Lecturer: Jean Elson, Catherine L. Moran

Sociology is the study of social life, social change, and the social causes and consequences of human behavior. Sociologists investigate the structure of groups, organizations, and societies, and how people interact within these contexts.

Since human behavior is shaped by social factors, the subject matter of sociology ranges from the intimate family to the hostile mob; from organized crime to religious cults; from the divisions of race, gender, and social class to the shared beliefs of a common culture.

Majoring in sociology provides a solid, multifaceted foundation in the liberal arts, including analytical thinking and writing, and skills in collecting and analyzing data. Students learn diverse theoretical approaches to the social world and acquire tools for conducting and

understanding social science research. The wide range of substantive areas taught in the UNH Sociology Department includes courses concentrating on family and work; environmental sociology; social policy; inequalities of race, class, and gender; criminology, social control, and deviant behavior; medical sociology; and religion.

Undergraduate training in sociology is an excellent background for a variety of careers, including the business world, where majors might work in marketing and sales or human resources, or government or private services, where a major might work in education, health services, social welfare, criminal justice, or research. An undergraduate degree in sociology is also excellent preparation for graduate work in law, social work, counseling, public administration, public health, business administration, urban planning, or further studies in sociology.

To declare a major in sociology, students must have completed at least one introductory level sociology course with a grade of C or better. New students who declare the major upon admission to UNH must enroll in SOC 400 during their first semester and earn a grade of C to maintain status in the program.

Majors must complete a minimum of 40 semester credits in sociology courses with grades of C- or better in each course and a GPA of 2.0 or better in sociology courses. SOC 400, 502, 599, 601, and 611 are required. At least two of the additional five major courses must be at the 600 or 700 level (upper-level electives). SOC 502 and 599 are both prerequisites for SOC 601, and majors must take SOC 599 no later than their junior year. SOC 595 can be used to fulfill one lower-level elective or SOC 699 can be used to fulfill one upper-level elective. SOC 502 (Statistics) may not be used by sociology majors for General Education requirement Category 2 (Quantitative Reasoning). Statistics courses in other disciplines are generally acceptable as a substitute for SOC 502.

Conjoint minors (allowing double-counting of one or two courses) are available for justice studies; gerontology; American studies; race, culture, and power; women's studies; and other approved minors. Students also have the opportunity to pursue a second major, including justice studies. Students interested in social work or teaching can develop programs in conjunction with the appropriate departments. The departmental honors program is recommended for students with cumulative grade-point averages over 3.2, and especially for those anticipating graduate study.

Students interested in majoring in sociology should consult with the chair of the Undergraduate Committee in the Sociology Department for guidance. It is the responsibility of all sociology majors to obtain the latest information from the department office. A minor consists of any five

four credit courses in sociology with a C- or better in each course and a grade-point average of 2.0 or better in these courses.

Sociology Language Requirement

The Bachelor of Arts degree at the University of New Hampshire requires that a student satisfy the foreign language proficiency requirement. The requirement may be met by demonstrating language proficiency equal to a one-year college-level course (401 and 402, 403 and 503, 501 [Latin only], or 503 and above in a spoken language).

The Department of Sociology requires all students declaring the major after fall 2006 to choose from one of the following languages: Arabic, Chinese, French, German, Greek, Italian, Japanese, Latin, Portuguese, Russian, and Spanish. Exceptions to this list must be petitioned and approved by the Department of Sociology's Undergraduate Committee and a student's adviser.

» [Click to view course offerings](#)

^ [back to top](#)

Spanish (SPAN) ▼

» <http://www.unh.edu/spanish>

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Professor: Janet Gold

Associate Professor: John M. Chaston, Carmen Garcia de la Rasilla, Marco Dorfsman, Lori Hopkins, Lina Lee, Jaume Marti-Olivella

Assistant Professor: Holly R. Cashman

Senior Lecturer: Mary Kathleen Belford, Elisa F. Stoykovich, Linda J. Thomsen

Lecturer: Sarah E. Hirsch, Cindy Pulkkinen, Maria I. Rossi

The major in Spanish is offered by the **Department of Languages, Literatures, and Cultures**.

It is designed to help students develop proficiency in the Spanish language and an appreciation of the cultural and literary achievements of Hispanic societies around the globe. This dual emphasis on communication and understanding prepares students to live in a world community where Spanish is becoming increasingly important for both personal and professional reasons. In addition, the program offers courses in Portuguese. Students also have the option to complete honors in the major providing they complete the necessary classes and a senior thesis in Spanish.

Students who major in Spanish may prepare themselves for a variety of fields in which proficiency in the Spanish language and knowledge of Hispanic cultures are desirable. Such fields might include international relations, business administration, government work, social service, and communications. In addition, students can prepare to teach Spanish at the elementary and secondary levels and in bilingual education programs through the foreign language teacher education program. The undergraduate major also provides a basis for graduate study in preparation for scholarly research and teaching at the college level. When combined with coursework or a dual major in other disciplines, the major prepares students for work in Spanish-speaking areas of the world as well as in bilingual regions of the United States.

The UNH study abroad program in Granada, Spain, open to majors and nonmajors, offers students the opportunity to live and study abroad for a semester or a full academic year. A six-week summer immersion program in Puebla, Mexico, also is available to students. Financial aid is available for eligible students. Contact the departmental program directors for further information.

The Spanish Major

The major consists of a minimum of 40 credits. All coursework required for the Spanish major must be completed with a grade of C or better. Specific course requirements are 1) language and culture: 525 or 526, 631, and 632; 2) four 600-level electives from the following: 641, 645, 648, 650, 651, 652, 653, 654 or equivalent; 3) three courses taught in Spanish at the 700 level. An approved foreign study experience in a Spanish-speaking country of a minimum of one semester is required; a full academic year is highly recommended.

The Spanish Minor

The Spanish minor consists of 20 credits in courses numbered 503 and above, including 631 and 632. At least three courses must be taken in residence at UNH. All coursework required for the Spanish minor must be completed with a grade of C or better and may not be taken pass/fail.

The Latin American Studies Minor

Spanish program faculty coordinate an interdisciplinary minor in Latin American studies. Coursework is drawn not only from the Spanish program, but from other programs across campus, such as the Anthropology Department, the History Department, and the Political Science Department. See the Latin American Studies page for more information.

For more information on the major, the minor, and options for the study abroad experience, please see the coordinator of Spanish.

» [Click to view course offerings](#)

^ [back to top](#)

Theatre and Dance (THDA) ▼

» <http://www.unh.edu/theatre-dance/>

» [Click to view course offerings](#)

Chairperson: Deborah A. Kinghorn

Professor: H. Gay Nardone, David M. Richman, Charles L. Robertson

Associate Professor: Raina S. Ames, David J. Kaye, Deborah A. Kinghorn, David L. Ramsey

Assistant Professor: Matthew Nesmith

Senior Lecturer: Carol J. Fisher, Sarah Jane Marschner, Daniel J. Raymond

The Department of Theatre and Dance has one of the largest and most varied undergraduate theatre programs in the Northeast. The program offers a dance option as well as emphases in acting, design and theatre technology, musical theatre, secondary education, youth drama, and youth drama in special education. Performance opportunities include six main-stage faculty-directed productions, three touring productions, and more than 20 student-directed productions including plays, musical theatre, dance, puppetry, improvisation, comedy, and creative drama.

The award-winning faculty provides theatre majors with superlative training within a broad liberal arts context. Students may take courses in acting; voice and movement; dialects; directing; choreography; design and theatre technology; the history, theory and criticism of drama and theatre; youth drama; secondary school certification; youth drama in special education; playwriting; storytelling; puppetry; ballet; theater dance (jazz and tap); aerial dance; musical theatre; and touring theatre. Students interested in performance, technical, and historical aspects of theatre will be well trained to step into professional careers. The program affords means for independent study and internships, special projects, and active personal involvement in lecture and laboratory classes, with the possibility for integration with other departments. To assist with financial needs, the department awards scholarships to undergraduates each spring.

Requirements for the Major

In addition to general liberal arts preparation, seven specific course sequences are available within the theatre major:

1. courses leading to a theatre major with an emphasis in acting;
2. courses leading to a theatre major with an option in dance: ballet, theatre dance (tap and jazz), and aerial dance;
3. courses leading to a theatre major with an emphasis in design and theatre technology;
4. courses leading to a theatre major with an emphasis in musical theatre;
5. courses leading to a theatre major that, if desired, may be combined with requirements of the **Department of Education**, in conjunction with a fifth year Master's of Arts in Teaching (MAT) program, to prepare students for secondary school certification with an undergraduate specialization in secondary theatre education;
6. courses leading to a theatre major that, if desired, may be combined with requirements of the **Department of Education**, in conjunction with a fifth year of Master's in Education (M.Ed.) program, to prepare students for elementary school certification with an undergraduate specialization in youth drama;
7. courses leading to a theatre major that, if desired, may be combined with requirements of the **Department of Education**, in conjunction with a fifth year Master's in Education (M.Ed.) program, to prepare students for elementary school certification with an undergraduate specialization in youth drama in special education.

The general theatre major allows students to explore a variety of areas. In the freshman and sophomore years, students should enroll for at least two theatre and two general education courses per semester. Students meet with the chair of the department until they are assigned an adviser appropriate to each individual's area of interest. The minimum grade requirement is C- per course. Any grade lower than a C- will not count toward the major. Under department policy, students who complete both COMM 533 and 733 satisfy the language competency requirement.

All theatre majors will be advised to take THDA 435, Introduction to Theatre, to fulfill their General Education Group 6 requirement.

All majors must take classes in the following areas: performance, design/technology, and theory/history. They must also fulfill four practicums and complete a capstone course. Although timing will vary with each emphasis, it is strongly suggested that all introductory courses be taken prior to the end of the student's sophomore year.

All UNH B.A. degrees require a minimum of 128 credit hours. Within those 128 credit hours, the theatre major offers seven specific course sequences:

Theatre (B.A.) General Theatre

Contact David Richman, Paul Creative Arts Center, (603) 862-2218, dmr@cisunix.unh.edu

I. 22 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	436 or 438	History of Theatre I or II	4
THDA	459	Stagecraft	4
THDA	462 or 463	Ballet I or Theatre Dance I	4
THDA	551 or 555	Acting I or Musical Theatre I	4
THDA	689 A-D	Practicum	4
THDA	798 or 799	Senior Thesis or Capstone Project	2

II. Four Credits from Theory/History

Abbreviation	Course Number	Title	Credits
THDA	436 or 438	History of Theatre I or II	4
THDA	450	History of Musical Theatre in America	4
THDA	520	Creative Drama	4
THDA	541	Arts and Theatre Administration	4
THDA	632	Interpretation of Shakespeare in Theatre	4
THDA	638	American Theatre: 1920-1970	4
THDA	657	Play Reading	4
THDA	721	Education Through Dramatization	4
THDA	727	Methods of Teaching Theatre	4
THDA	750	Writing for Performance (Playwriting)	4
THDA	762	Women in 20th and 21st Century American Theatre	4

III. Four Credits from Design/Theatre Technology

Abbreviation	Course Number	Title	Credits
THDA	458	Costume Construction	4
THDA	475	Stage Makeup	2
THDA	532	The London Experience	2
THDA	546	Costume Design for the Theatre	4

THDA	547	Stage Properties	4
THDA	548	Stage Lighting Design and Execution	4
THDA	583	Introduction to Puppetry	4
THDA	641	Stage Management	2
THDA	650	Scene Painting for the Theatre	2
THDA	651	Rendering for the Theatre	2
THDA	652	Scene Design	4
THDA	683	Advanced Puppetry	4

IV. Four Credits from Performance

Abbreviation	Course Number	Title	Credits
THDA	462	Ballet I	4
THDA	463	Theatre Dance I	4
THDA	470	Movement and Vocal Production	4
THDA	551	Acting I	4
THDA	552	Acting II	4
THDA	555	Musical Theatre I	4
THDA	592A	Special Topics	4
THDA	622	Storytelling, Story Theatre, and Involvement Drama	4
THDA	624	Theatre for Young Audiences	4
THDA	655	Musical Theatre II	4
THDA	656	Musical Theatre III	4
THDA	741	Directing I	4
THDA	755	Advanced Musical Theatre	4
THDA	756	Producing & Directing the Musical	4
THDA	758	Acting III	4

V: Eight Credits from any 600-800 level course

Abbreviation	Course Number	Title	Credits
		Includes those in Sections II, III, and IV	
THDA	691/791	Internship in Theatre & Dance	1-8
THDA	795/796	Independent Study	1-8

THDA	798	Senior Thesis	2
THDA	799	Capstone Project	2

Total: 42 Credit Hours

The Acting Emphasis

The Acting emphasis was created for students with an intense interest in acting and/or directing. The emphasis was designed to develop all aspects of the actor and the director as both an interpretive and creative artist. This program gives students the rigorous training of a B.F.A.-styled program while providing all the advantages of a fully rounded liberal arts education. Students in the Acting emphasis program are expected to strive for excellence in all areas of the art and craft of acting through highly challenging coursework, performance-based projects, and productions and special workshops with guest artists and instructors.

Theatre (B.A.) Emphasis in Acting

Contact David Kaye, Paul Creative Arts Center, (603) 862-0667, djk@unh.edu

I. 46 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	436	History of Theater I	4
THDA	438	History of Theater II	4
THDA	459	Stagecraft	4
THDA	462 or 463	Ballet I or Theatre Dance I	4
THDA	470	Movement and Vocal Production	4
THDA	551	Acting I	4
THDA	552	Acting II	4
THDA	555	Musical Theatre I	4
THDA	689 A-D	Practicum	4
THDA	758	Acting III	4
THDA	759	Acting: Period and Style	4
THDA	799	Capstone Project	2

II. Four Credits from Theory/History

Abbreviation	Course	Title	Credits
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	Number		
THDA	450	History of Musical Theatre in America	4
THDA	632	Interpretation of Shakespeare in Theatre	4
THDA	638	American Theatre: 1920-1970	4
THDA	657	Play Reading	4
THDA	750	Writing for Performance (Playwriting)	4
THDA	762	Women in 20th and 21st Century American Theatre	4

III. Four Credits from Design/Theatre Technology

Abbreviation	Course Number	Title	Credits
THDA	546	Costume Design for the Theatre	4
THDA	548	Stage Lighting Design and Execution	4
THDA	652	Scene Design	4

IV. 12 Credits from any THDA course offering

Abbreviation	Course Number	Title	Credits
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Total: 66 Credit Hours

The Dance Emphasis

A diverse program in dance is offered as an option within the Department of Theatre and Dance. This option is designed to give the dance teacher, choreographer, and/or performer the skills needed to embark on a successful career. Technique courses in ballet, pointe, tap, jazz, and the aerial arts are at the core of this program. Courses in pedagogy, composition, dance history, and choreography allow dancers to explore a variety of disciplines in the dance field. In addition, dancers are introduced to the technical aspects involved in staging a full-scale performance. Performance opportunities include yearly faculty-directed dance concerts and student-created dance showcases each semester. Dancers may focus on one or all dance forms.

Theatre (B.A.) Option in Dance

Contact Larry Robertson, Newman Dance Studio, (603) 862-3032, collarrob@yahoo.com.

I. 20 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	459	Stagecraft	4
THDA	487	The Dance	4
THDA	551 or 555	Acting I or Musical Theatre I	4
THDA	653	Performance Project	2
THDA	689 A-D	Practicum	4
THDA	799	Capstone Project	2

II. 12 Credits Required from Theory

Abbreviation	Course Number	Title	Credits
THDA	633	Dance Composition	4
THDA	732	Choreography	4
THDA	786	Dance Pedagogy	4

III. Eight Credits from Fine Arts

Abbreviation	Course Number	Title	Credits
ARTS	572	Art of the Age of Humanism	4
ARTS	573	Art of the Modern World	4
MUSI	411-412	Fundamentals of Music Theory	4
MUSI	709	Music of the Romantic Period	4
MUSI	711	Music of the 20th Century	4
PHIL	421	Philosophy of the Arts	4
THDA	546	Costume Design for the Theatre	4
THDA	548	Stage Lighting Design and Execution	4
THDA	555	Musical Theatre I	4
THDA	655	Musical Theatre II	4
THDA	798	Senior Thesis	2

IV. 16 Credits from Performance

Abbreviation	Course Number	Title	Credits
THDA	462	Ballet I	4
THDA	562	Ballet II (May be repeated to 4 cr)	2
THDA	662	Ballet III (May be repeated to 16 cr)	2

THDA	463	Theatre Dance I	4
THDA	563	Theatre Dance II (May be repeated to 4 cr)	2
THDA	663	Theatre Dance III (May be repeated to 16 cr)	2
THDA	576	Pointe	2
THDA	597	Dance Theatre Performance (Repeatable to 16 cr)	2
THDA	665	Aerial Dance (May be repeated to 16 cr)	2
THDA	684	Special Topics	2-4

Total: 56 Credit Hours

The Design and Theatre Technology Emphasis

The design and theatre technology emphasis prepares students for both practical and aesthetic work in the theatre through class work, production assignments, and everyday problem solving. UNH's theatre technicians and designers are in demand throughout the country, utilizing transferable skills not only in the theatre but in the allied arts and beyond. UNH-trained graduates hold careers across the nation as lighting, scenic, and costume designers; technical directors; property masters; head electricians; and scene painters.

Theatre (B.A.) Emphasis in Design and Theatre Technology

Contact David Ramsey, Paul Creative Arts Center, (603) 862-2587, dramsey@metrocast.net.

I. 22 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	436 or 438	History of Theater I or II	4
THDA	459	Stagecraft	4
THDA	462 or 463	Ballet I or Theatre Dance I	4
THDA	551 or 555	Acting I or Musical Theatre I	4
THDA	689 A-D	Practicum	4
THDA	799	Capstone Project	2

II. 12 Credits from

Abbreviation	Course Number	Title	Credits

THDA	458	Costume Construction	4
THDA	546	Costume Design for the Theatre	4
THDA	548	Stage Lighting Design and Execution	4
THDA	652	Scene Design	4

III. 12 Credits from

Abbreviation	Course Number	Title	Credits
THDA	475	Stage Makeup	2
THDA	541	Arts and Theatre Administration	4
THDA	546	Costume Design for the Theatre	4
THDA	547	Stage Properties	4
THDA	548	Stage Lighting Design and Execution	4
THDA	641	Stage Management	2
THDA	650	Scene Painting for the Theatre	2
THDA	651	Rendering for the Theatre	2
THDA	652	Scene Design	4
THDA	654	Scenic Arts Project	2
THDA	741	Directing I	4

IV. Eight Credits from

Abbreviation	Course Number	Title	Credits
ARTS	455	Introduction to Architecture	4
ARTS	525	Woodworking	4
ARTS	532	Introduction to Drawing	4
ARTS	546	Introduction to Painting	4
ENGL	631, 657, 746, 758, 781, 782	The Drama, Shakespeare, Studies in American...*	4
FREN	522	French Drama in Translation	4
GERM	640	German Drama	4
SPAN	752, 757, 771	Drama & Poetry of the Siglo de Oro, Spanish...**	4
THDA	532	The London Experience	2
THDA	583	Introduction to Puppetry	4
THDA	691/791	Internship in Theatre	1-8

THDA	795/796	Independent Study	1-8
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* The Drama, Shakespeare, Studies in American Drama, Shakespeare, The Drama of Shakespeare's Contemporaries, English Drama, Modern Drama

**Drama & Poetry of the Siglo de Oro, Spanish Drama of the 20th Century, Latin American Drama

Total: 54 Credit Hours

The Musical Theatre Emphasis

The musical theatre emphasis is designed to cultivate and nurture the creative artistry of those highly motivated students who wish to develop their combined talent as singers, actors, and dancers. Students in the musical theatre emphasis program will thrive in this intense and dynamic program of coursework, practical application, performance-based projects, faculty- and student-directed productions, and special workshops with guest artists and instructors. Students will be expected to fully integrate their rigorous training as actors, dancers, and singers with the outstanding liberal arts education they will receive at UNH to become well-rounded and marketable musical theatre artists.

Theatre (B.A.) Emphasis in Musical Theatre

Contact Matt Nesmith, Paul Creative Arts Center, (603) 862-3288, matt.nesmith@unh.edu.

I. 10 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	459	Stagecraft	4
THDA	689 A-D	Practicum	4
THDA	799	Capstone Project	2

II. Eight Credits Required from Dance

Abbreviation	Course Number	Title	Credits
THDA	462	Ballet I	4
THDA	463	Theatre Dance I	4

III. Eight Credits Required from Acting and Movement

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Abbreviation	Course Number	Title	Credits
THDA	470	Voice and Movement	4
THDA	551	Acting I	4

IV. 10 Credits Required from Music

Abbreviation	Course Number	Title	Credits
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice I	1
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice II	1
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice III	1
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice IV	1
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice V	1
THDA	795	Ind Study: Indiv. Instr. Musical Theatre Voice VI	1
MUSI	411	Fundamentals of Music Theory	4

V. 20 Credits Required from Musical Theatre

Abbreviation	Course Number	Title	Credits
THDA	450	History of Musical Theatre in America	4
THDA	555	Musical Theatre I	4
THDA	655	Musical Theatre II	4
THDA	656	Musical Theatre III	4
THDA	755	Advanced Musical Theatre	4

VI. Eight Credits from

Abbreviation	Course Number	Title	Credits
THDA/MUSI		Non-repeating credits*	8

*Choose eight non-repeating credits from any THDA course or any MUSI course that involves vocal training/performance, music theory, ear training, or piano.

Total: 64 Credit Hours

Secondary Theatre Education Emphasis

For candidates who want to work with high school students teaching drama courses and/or directing high school productions, the secondary theatre education emphasis offers practical and theoretical training for teachers. Through laboratory work, students obtain hands-on theatre teaching experience, so that by the time they reach their graduate school internship, they have spent significant hours in the classroom working with children. Students are provided with extensive training and practical teaching experience specifically geared toward the goal of being a theatre teacher. Students will be expected to fully integrate education and theatre coursework so that they leave UNH prepared for the rigorous task of teaching at the secondary level.

Theatre (B.A.) Emphasis in Secondary Theatre Education

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

I. 56 Credits Required from Theatre

Abbreviation	Course Number	Title	Credits
THDA	436	History of Theater I	4
THDA	438	History of Theater II	4
THDA	459	Stagecraft	4
THDA	463	Theatre Dance I	4
THDA	475	Stage Makeup	2
THDA	551	Acting I	4
THDA	555	Musical Theatre I	4
THDA	624	Theatre for Young Audiences	4
THDA	689 A-D	Practicum	4
THDA	721	Education Through Dramatization	4
THDA	727**	Methods of Teaching Theatre	4
THDA	729	Community-Oriented Drama Programs	4
THDA	741	Directing I	4
THDA	760	Teacher Planning for Theatre	4
THDA	799	Capstone Project (must be taken in senior year)	2

II. Four Credits from Design/Theatre Technology

Abbreviation	Course Number	Title	Credits

THDA	458	Costume Construction	4
THDA	546	Costume Design for the Theatre	4
THDA	548	Stage Lighting Design and Execution	4

III. Four Credits From Education

Abbreviation	Course Number	Title	Credits
EDUC	500/935**	Exploring Teaching	4

B.A. in Theatre with emphasis in Secondary Theatre Education

Total: 64 Credit Hours

IV. 16 Credits Required from Education*

Abbreviation	Course Number	Title	Credits
EDUC	700/800	Educational Structure and Change	4
EDUC	701/801	Human Development & Learning: Educational Psycholo	4
EDUC	705/805	Alternate Perspectives on the Nature of Education	4
EDUC	751B/851B	Educational Exceptional Learners: Secondary	4

*May be taken at the undergraduate level or the graduate level.

**Must be taken before student teaching internship.

B.A. in Theatre plus undergraduate coursework toward the M.A.T. in Education

Total: 80 Credit Hours

THDA Electives

Students should take at least 12 credits from the following courses (one of which should be another Design course):

THDA 450, History of Musical Theatre in America; 520, Creative Drama; 547, Stage Properties; 583, Introduction to Puppetry; 622, Storytelling, Story Theatre, and Involvement Dramatics; 632: Interpretation of Shakespeare in Theatre; 638: American Theatre: 1920-1970; 641, Stage Management; 652, Scene Design; 653, Performance Project or 654, Scenic Arts Project; 657:

Play Reading; 683, Advanced Puppetry; 750, Writing for Performance; 762, Women in 20th and 21st Century American Theater.

NOTE: It is understood that students will fulfill 20 internship contact hours with theatre students in their emphasis area: elementary, middle, or high school. Projects for 653A and 729 cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the department's outreach program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing, or in some other capacity as specifically arranged with their theatre adviser.

It also is understood that students involved in the above course curriculum in order to get state theatre arts certification must apply to either the UNH Department of Education or another university for acceptance into a fifth-year Master of Arts in Teaching (M.A.T.) or Masters of Education (M. Ed.) degree program that fulfills state requirements for certification.

The Youth Drama Emphasis

The youth drama emphasis is for those students who wish to use dramatic arts as a teaching tool, either in the elementary classroom or as a teaching artist. Our comprehensive curriculum is specifically designed to train teachers. Through laboratory work, students obtain hands-on theatrical teaching experience, so that by the time they reach their graduate school internship, they have spent significant hours in the classroom working with children. Students will be expected to fully integrate education and theatre coursework so that they leave UNH with sound theoretical training in addition to practical instruction on how to use drama to enhance learning outcomes, address classroom discipline issues, and, of course, bring the arts to life in the classroom.

Theatre (B.A.) Emphasis in Youth Drama

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu

I. 46 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	435	Introduction to Theatre	4
THDA	459	Stagecraft	4
THDA	463	Theatre Dance I	4
THDA	520	Creative Drama	4

THDA	583	Introduction to Puppetry	4
THDA	622	Storytelling, Story Theatre & Involvement Drama	4
THDA	624	Theatre For Young Audiences	4
THDA	689 A-D	Practicum	4
THDA	683	Advanced Puppetry	4
THDA	721	Education Through Dramatization	4
THDA	729	Community-Oriented Drama Programs	4
THDA	799	Capstone Project (must be taken in senior year)	2

II. Four Credits Required from Education

Abbreviation	Course Number	Title	Credits
EDUC	500 / 935**	Exploring Teaching	4

**Must be taken before student teaching internship.

B.A. in Theatre with emphasis in Youth Drama

Total: 50 Credit Hours

III. 24 Credits Required from Education*

Abbreviation	Course Number	Title	Credits
EDUC	700 / 800	Educational Structure & Change	4
EDUC	701 / 801	Human Development & Learning	4
EDUC	703F / 803F	Teaching Science	2
EDUC	703M / 803M	Teaching Elementary Science & Social Studies	2
EDUC	705 / 805**	Alternative Perspectives on Nature of Education	4
EDUC	706 / 806**	Introduction to Reading Instruction	4
EDUC	751A / 851A	Educating Exceptional Learners: Elementary	4

IV. Four Credits From Math Education**

Abbreviation	Course Number	Title	Credits
MATH	601 or 602	Exploring Mathematics for Teachers I or II	4

MATH	621	Number Systems for Teachers	4
MATH	622	Geometry for Teachers	4
MATH	623	Topics in Mathematics for Teachers	4
MATH	703	Teaching of Mathematics, K-6	4
MATH	910	Teaching Elementary School Mathematics	4
EDUC	741 / 841	Exploring Mathematics for Young Children	4

B.A. in Theatre plus undergraduate coursework toward the M.Ed. in Elementary Education

Total Up To 78 Credit Hours

Note: It is understood that students will fulfill 20 internship contact hours with theatre students in their emphasis area: elementary, middle, or high school. Projects for 653A and 729 cannot count as internship hours. Students may fulfill this requirement through a variety of teaching opportunities with the department's outreach program (both during the school year and in the summer), or they may work with local schools teaching, coaching actors, assistant directing, choreographing, or in some other capacity as specifically arranged with their theatre adviser.

It also is understood that students involved in the above course curriculum in order to get state theatre arts certification must apply to either the UNH Department of Education or another university for acceptance into a fifth-year Master of Arts in Teaching (M.A.T.) or Masters of Education (M. Ed.) degree program that fulfills state requirements for certification.

The Youth Drama in Special Education Emphasis

The youth drama emphasis is a five- to six-year combined B.A. degree and M.Ed. program for candidates who want to work with special/exceptional students in the elementary setting. The youth drama major as an undergraduate lays the groundwork for arming a creative, motivated classroom teacher. As students transition into the graduate certification program, they begin working with a special education advisor who helps students plan their graduate coursework. While undergraduate theatre majors, students obtain hands-on teaching experience, so that by the time they reach their graduate school internship, they have spent significant hours in the classroom working with children. Students will be expected to fully integrate undergraduate theatre knowledge with graduate courses in special education so that they leave UNH with sound theoretical training and practical instruction on how to use drama to enhance learning outcomes for the multiple intelligences of special/exceptional students.

Theatre (B.A.) Emphasis in Youth Drama in Special Education

Students may wish to contact the Education department to learn more about teacher certification and Master of Education (M. Ed.) that can be accomplished at UNH in the five year program.

Contact Raina Ames, Paul Creative Arts Center, (603) 862-3044, raina.ames@unh.edu.

I. 42 Credits Required From THDA

Abbreviation	Course Number	Title	Credits
THDA	435	Introduction to Theatre	4
THDA	459	Stagecraft	4
THDA	463	Theatre Dance I	4
THDA	520	Creative Drama	4
THDA	583	Introduction to Puppetry	4
THDA	622	Storytelling, Story Theatre & Involvement Drama	4
THDA	624	Theatre For Young Audiences	4
THDA	689 A-D	Practicum	4
THDA	721	Education Through Dramatization	4
THDA	729	Community-Oriented Drama Programs	4
THDA	799*	Capstone Project (must be taken in senior year)	2

*THDA 798 Senior Thesis (4 cr) may replace THDA 799 Capstone Project (2 or 4 cr)

II. 44 Credits Required From Education

Abbreviation	Course Number	Title	Credits
EDUC	706 / 806**	Introduction to Reading Instruction	4
EDUC	750 / 850**	Introduction to Exceptionality	4
EDUC	751 / 851**	Educating Exceptional Learners	4
EDUC	939, 940	SPED teaching / assessment classes	8
EDUC	900, 901 C	Teaching Internship	12
EDUC	938	Advanced SPED seminar	4

EDUC	949	Supporting Families	4
EDUC	981	Research Methods	4

III. Four Credits Required From Math

Abbreviation	Course Number	Title	Credits
MATH	601 or 602	Exploring Mathematics for Teachers I or II	4
MATH	621	Number Systems for Teachers	4
MATH	622	Geometry for Teachers	4
EDUC	741 / 841	Exploring Mathematics for Young Children	4

IV. 12 Elective Credits

Abbreviation	Course Number	Title	Credits
EDUC	998	Special Topics	1-4

B.A. in Theatre plus undergraduate coursework toward the M. Ed. in Special Education

Total Up To 102 Credit Hours

Additionally, students would be strongly encouraged to fulfill their foreign language requirement with American Sign Language.

THDA undergraduate courses can be taken for graduate credit through EDUC 998. Possible courses include puppetry, integrated arts, and/or reading across the curriculum.

Minoring in Theatre and Dance

The general theatre minor consists of 20 credits in theatre. Listed below are a variety of specialized minors that have mandatory requirements.

General Minor in Theatre

Contact Deb Kinghorn, 862-1963, deb.kinghorn@unh.edu.

1: 20 Credits Required

Abbreviation	Course Number	Title	Credits
THDA		Choose any 20 credits from the General Major	20

Dance Minor

Contact Larry Robertson, 862-3032, collarrob@yahoo.com.

I. Up to 16 Credits

Abbreviation	Course Number	Title	Credits
THDA	461	Modern Dance I	4
THDA	462	Ballet I	4
THDA	562	Ballet II	2
THDA	662	Ballet III	2
THDA	463	Theatre Dance I	4
THDA	563	Theatre Dance II	2
THDA	663	Theatre Dance III	2
THDA	665	Aerial Dance	2
THDA	597	Dance Theatre Performance	2
THDA	576	Pointe	2

II. At Least Four Credits Required

Abbreviation	Course Number	Title	Credits
THDA	487	The Dance	2-4
THDA	586	Dance Pedagogy	4
THDA	632	Choreography	4
THDA	633	Dance Composition	4
THDA	684	Special Topics	2-4

Total: 20 Credit Hours

Musical Theatre Minor

Contact Matt Nesmith, 862-3288, matt.nesmith@unh.edu.

I. 12 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	450	History of Musical Theatre in America	4

THDA	555	Musical Theatre I	4
THDA	655	Musical Theatre II	4

II. Six Credits from

Abbreviation	Course Number	Title	Credits
THDA	463	Theatre Dance I	4
THDA	563	Theatre Dance II	2
THDA	663	Theatre Dance III	2

III. Four Credits Required

Abbreviation	Course Number	Title	Credits
THDA	656	Musical Theatre I	4
THDA	755	Advanced Musical Theatre	4
THDA	756	Producing & Directing the Musical	4

Total: 22 Credit Hours

Youth Drama Minor

Contact Raina Ames, 862-3044, raina.ames@unh.edu.

I. 24 Credits Required

Abbreviation	Course Number	Title	Credits
THDA	520	Creative Drama	4
THDA	583	Introduction to Puppetry	4
THDA	622	Storytelling, Story Theatre & Involvement Drama	4
THDA	624	Theatre for Young Audiences	4
THDA	683	Advanced Puppetry	4
THDA	721	Education Through Dramatization	4

Total: 24 Credit Hours

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[^ back to top](#)

Women's Studies (WS) ▼

» <http://www.unh.edu/womens-studies/>

» [Click to view course offerings](#)

Coordinator: Marla A. Brettschneider

Professor: Marla A. Brettschneider

Research Associate Professor: Mary M. Moynihan

Assistant Professor: Carol B. Conaway

Affiliate Assistant Professor: Christine W. Saltzberg

Research Instructor: Jane Stapleton

Lecturer: Carina E. Self

Core Faculty: Victoria L. Banyard, Jennifer L. Borda, Diane P. Freedman, Robin Hackett, Marc W. Herold, Lori Hopkins, Delia C. Konzett, Janet L. Polasky, Mary E. Rhiel, Juliette M. Rogers, Christine W. Saltzberg, Judy Sharkey, Sarah M. Stitzlein, Reginald A. Wilburn, Mara R. Witzling

Women's studies provides students with an understanding of the status of women and gender roles in various cultures and historical eras. Students learn the use of gender as a category of analysis, and increase their knowledge of women's contributions to many fields and the roles gender plays in them. Women's studies courses offer students critical perspectives on such basic questions of the social order as assumptions about gender roles and gender identity and the ways cross-cutting phenomena such as racism, heterosexism, ableism, and ageism are a part of them.

A major or minor in women's studies prepares students for careers where the changing roles of women, and gender more broadly, have a perceptible impact. Women's Studies graduates go on to law school and graduate school in a variety of disciplines. Some have taken positions with social change or family service agencies, while others have found work in such fields as politics, communications, community organizing, education, affirmative action, healthcare, and personnel.

Women's Studies Major

For the women's studies major, students must complete 40 credits of Women's Studies courses (or 32 in the case of a second major) with grades of C- (1.67) or better and an overall grade-point average of 2.0 or better. These courses must include the following three: 1) WS 401, Introduction to Women's Studies, and/or WS 405: Gender, Power, and Privilege, normally

taken at the beginning of the course sequence; 2) WS 632, Feminist Thought; and 3) a 700-level WS-designated course (for instance, WS 795, 796, 797, 798, or 799). Electives are chosen in consultation with a faculty adviser principally from other Women's Studies courses, including WS 595 (Special Topics in Women's Studies) and cross-listed departmental offerings. Students must take at least half of their courses at the 600 level and above to complete the major and at least half of their courses must be WS-designated classes. A maximum of two 400-level courses may count toward the major.

Departmental offerings include the following regularly repeated cross-listed courses:

ARTS 487, Themes and Images in Art: Major Mythic Images of Women

ARTS 690, Women Artists of the Nineteenth and Twentieth Centuries

CMN 567, Images of Gender in the Media

CMN 583, Gender and Expression

ECON 698, Topics in Economics: Women in Economic Development

EDUC 507, Mentoring Adolescents

ENGL 585, Introduction to Women in Literature

ENGL 685, Women's Literary Traditions

ENGL 785, Major Women Writers

FS 545, Family Relations

FS 757, Race, Class, Gender, and Families

GERM 520, Women in German Literature and Society

GERM 524, Topics in German Film

HIST 565, Women in Modern Europe

HIST 566, Women in American History

NURS 595, Women's Health

POLT 525, Multicultural Theory

POLT 721, Feminist Political Philosophy

PHIL 510, Philosophy and Women

PSYC 711, Psychology in 20th Century Thought and Society

SOC/ANTH 625, Female, Male, and Society

SOC 630, Sociology of Gender

Students may also select from other courses that are offered as special topics by the departments. In the past, such offerings have included the following: ANTH 697, Women in the Middle East; CMN 616, Women and Film; FREN 525, French Women: Subject and Object; POLT 797, Queer Gender Theory.

Electives must show a balance between arts and humanities/social sciences and be distributed

between upper (600 and 700) and lower (400 and 500) level courses; no more than four electives may be from the same department. No fewer than five courses should be taken at the upper level (for a first major). Strongly recommended are a practicum or internship course, and courses that focuses on women of color, cross-cultural, and queer perspectives.

Women's Studies Minor

For the women's studies minor, students must complete 20 credits of Women's Studies courses with a grade of C or better. Courses taken pass/fail may not be used toward the minor. No more than eight credits used to satisfy the requirements for the major may be used for a minor. Students electing the Women's Studies minor must complete WS 401, Introduction to Women's Studies, or WS 405, Gender, Power, and Privilege, and WS 798, Colloquium in Women's Studies, normally taken at the beginning and end of the course sequence, respectively. It may be possible to substitute WS 797, Internships, for WS 798, Colloquium with permission from a women's studies adviser. Additionally, students must complete three other women's studies courses, either program courses or those that are cross-listed with other departments. (For a more complete description of the women's studies minor, see [COLA/Interdisciplinary Programs.](#))

Students who wish to major or minor in women's studies should consult with the coordinator, 203 Huddleston Hall, (603) 862-2194.

» [Click to view course offerings](#)

^ [back to top](#)

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UNH Search:





College of Life Sciences and Agriculture

[Introduction](#)
[Degrees](#)
[Interdisciplinary
Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

College of Life Sciences and Agriculture ▼

» <http://www.colosa.unh.edu/>

Associate Dean: Kimberly J. Babbitt

Introduction ▼

The College of Life Sciences and Agriculture is organized into three departments: Biological Sciences; Molecular, Cellular, and Biomedical Sciences; and Natural Resources and the Environment.

Department of Biological Sciences

Majors: Animal Science (Equine Sciences), Biology (General; Ecology, Evolution & Behavior; Marine and Freshwater), Dairy Management, Environmental Horticulture, Plant Biology, Zoology

Chairperson: Christopher D. Neefus

Professors: William E. Berndtson, John F. Burger, Donald S. Chandler, William A. Condon, Thomas M. Davis, Curtis V. Givan, James F. Haney, Larry Harris, William H. Howell, Leland S. Jahnke, James B. Loy, Arthur C. Mathieson, Subhash C. Minocha, Christopher D. Neefus, Charles G. Schwab, Michelle P. Scott, Robert L. Taylor, Jr., Winsor H. Watson

Affiliate Professors: Ann Bucklin

Extension Professors: Alan T. Eaton, Catherine A. Neil, Jeffrey T. Schloss, Cheryl A. Smith, Stanley R. Swier

Research Professors: Raymond E. Grizzle

Associate Professors: Alan L. Baker, Patricia D. Bedker, David L. Berlinsky, Jessica A. Bolker, Elizabeth P. Boulton, Peter S. Erickson, James E. Pollard, John M. Roberts, Anita S. Klein

Affiliate Associate Professors: James Byers, Pingguo He, Richard Langan

Extension Associate Professors: Rebecca C. Grube, Trent S. Schriefer

Research Associate Professors: Molly E. Lutcavage

Affiliate Assistant Professors: Michelle Dionne, Dwight Trueblood, Barry Wicklow

Extension Assistant Professors: Brian A. Krug, Kenneth J. La Valley, Michal Lunak

Research Assistant Professors: Gregg E. Moore

Lecturers: Christina Keim

Department of Molecular, Cellular, and Biomedical Sciences

Majors: Animal Sciences (Bioscience and Technology; Preveterinary Medicine), Biochemistry, Biology (Molecular, Cellular and Developmental), Medical Laboratory Science, Microbiology, Nutritional Sciences

Chairperson: Rick H. Cote

Professors: Gale B. Carey, Rick H. Cote, Joanne Curran-Celentano, Clyde L. Denis, Wayne R. Fagerberg, Thomas L. Foxall, Thomas M. Laue, Aaron B. Margolin, Thomas G. Pistole, Frank G. Rodgers, Anthony R. Tagliaferro, W. Kelley Thomas, Louis S. Tisa, Paul C. Tsang, Charles W. Walker

Affiliate Professors: John A. McCracken, Ron Rompalla, Stacia A. Sower, Martin R. Stokes, Stuart A. Tobet

Clinical Professors: Richard A. French

Extension Professors: Deborah Luppold, Catherine A. Violette

Research Professors: Michael P. Lesser, Vernon N. Reinhold

Associate Professors: Dennis J. Bobilya, John J. Collins, Eleanne S. Dowd, Estelle M. Hrabak, Colette Janson-Sand, Andrew P. Laudano, David H. Townson

Affiliate Associate Professors: Arthur F. Stucchi

Clinical Associate Professors: Mary Katherine Lockwood, Ruth A. Reilly

Assistant Professors: Feixia Chu, Vaughn S. Cooper, Deena J. Small, Cheryl A. Whistler

Affiliate Assistant Professors: Bo. R. Rueda, John A. Ryan, John S. Sava, Nathan L. Smith, James A. Sulikowski, Gary B. Smejkal, Ellen Whittemore

Clinical Assistant Professors: Joanne D. Burke, Barry J. Corriveau, Adele J. Marone, Alice

D. Roudabush, Inga F. Sidor, Elise R. Sullivan

Research Assistant Professors: Kevin M. Culligan, Jennifer A. Durant, Dennis E. Mathews

Lecturers: Joyce R. Stone, Jesse S. Morrell

Department of Natural Resources and the Environment

Majors: Community and Environmental Planning, Environmental Conservation Studies, Environmental and Resource Economics, Environmental Sciences (Ecosystems; Soil and Watershed Management) Forestry, Tourism Planning and Development, Wildlife Ecology

Chairperson: John M. Halstead

Professors: John D. Aber, John E. Carroll, Russell G. Congalton, Mark J. Ducey, Robert T. Eckert, Lyndon E. Goodridge, John M. Halstead, Theodore E. Howard, Bruce E. Lindsay, John A. Litvaitis, Marianne K. Litvaitis, William W. Mautz, William H. McDowell, Peter J. Pekins, Barrett N. Rock; Andrew A. Rosenberg, James T. Taylor

Affiliate Professors: Christopher Eagar, Jeffrey E. Gove, Jeffrey S. Kahl, William B. Leak, Rakesh Minocha, Lawrence J. Prelli

Extension Professors: Karen P. Bennett, Julia M. Peterson, Michael R. Sciabarrasi, Sarah S. Smith

Research Professors: Fredrick T. Short

Associate Professors: Mimi L. Becker, Kelly L. Cullen, Serita D. Frey, George C. Hurtt, Paul C. Johnson, Thomas D. Lee, Alberto B. Manalo, Douglas E. Morris, Scott V. Ollinger, Robert A. Robertson

Affiliate Associate Professors: Linda S. Heath, Peter A. Maddison

Extension Associate Professors: Charles A. French

Research Associate Professors: David M. Burdick, Stephen H. Jones

Affiliate Assistant Professors: Matthew Baber, Ria Brejaart, John L. Campbell, Richard A. Hallett, Joel N. Hartter, Erik A. Hobbie, Mary E. Martin, Bruce S. Wildblood-Crawford; Mariko Yamasaki

Extension Assistant Professors: Matthew D. Tarr

Research Assistant Professors: Adrienne I. Kovach

Lecturers: Mary A. Robertson

The objectives of the College of Life Sciences and Agriculture are to give students a fundamental education in the biological, natural, and social sciences and to introduce them to the arts and humanities. In addition, advanced technical and professional courses are offered to prepare students for graduate school or entry-level positions in areas concerned with improving the quality of life. Preparation can vary from fundamental studies of cancer cells to community-service planning, resource protection to genetic engineering, and molecular biology to biotechnology.

A blend of the basic and applied aspects of life sciences and agriculture, coupled with careful selection of supportive courses, ensures graduates the background and experiences necessary to be competitive in the job market. Potential employers include federal, state, and local governments; consulting firms; and industrial organizations. Graduates are employed as watershed, soil, and natural resource managers; associates in biomedical and agricultural research laboratories; marketing analysts and extension specialists; nutrition supervisors and environmental regulators; and information educators and communication experts.

Community governments employ graduates as service planners and land-use specialists, teachers in traditional education, public health technicians, and urban pest control specialists.

Positions are available in private and commercial organizations in production agriculture, food processing, landscaping, agribusiness, sales, and private planning. Graduates may also pursue entrepreneurial careers as greenhouse, nursery, farm, and natural resource managers; or as consultants, arborists, and environmental planners.

For those graduates with international aspirations, the Peace Corps and the Foreign Agriculture Service employ farm production experts, soil and water managers, market analysts, agricultural engineers, teachers, plant and animal breeders, and nutrition specialists.

Additionally, departments prepare students for advanced study in their chosen field of interest where graduate study is required for attaining their career goals.

Degrees ▼

The college offers three undergraduate degrees: the bachelor of arts, the bachelor of science, and the bachelor of science in forestry. Some of the courses prescribed in these degree programs partially fulfill the general education requirements. Students should see their advisers for specific information.

General Science Certification

Students majoring in animal sciences, biochemistry, biology, environmental conservation studies, environmental sciences, forestry, microbiology, plant biology, wildlife ecology, or zoology, may seek certification to teach science at the middle, junior, or high school level.

For further information, contact the coordinator of teacher education in the [Department of Education](#).

Advising System

A member of the faculty whose area of interest is closely related to the student's is appointed as an adviser to assist the undergraduate in planning his or her academic program. Further advising is also available in the dean's office, Rudman Hall.

Undeclared Status

Students may select a major upon entering the college or may wait until registration for the sophomore year. Students who are uncertain about choosing a specific major may remain undeclared during their freshman year. In most cases they should take the following courses, after which they should be ready to declare a major:

Fall

LSA 400

CHEM 403

BIOL 411

General education requirement

An introductory course in any department in the college

Spring

CHEM 404

BIOL 412

MATH 424B

General education requirement

Undeclared freshmen should explore possible majors by taking courses in the areas or programs that interest them most. They should talk to faculty, students, and their adviser concerning requirements, job opportunities, etc., in the various programs and should be prepared to declare a major when they register for the first semester of the sophomore year.

Combined Programs of Study

In addition to pursuing a single major, students may combine programs of study as follows (see University Academic Requirements for more information):

Minors: See [University Academic Requirements](#).

Second major: See [University Academic Requirements](#).

Dual-degree programs: See [University Academic Requirements](#).

Student-designed majors: See [Special University Programs](#).

Other combined and interdisciplinary opportunities: See [Special University Programs](#).

UNH-EcoQuest New Zealand Study Abroad Program

The Department of Natural Resources and the Environment offers highly motivated students the opportunity to study abroad through the UNH-EcoQuest New Zealand applied field studies program. Students engage in a unique multidisciplinary, research-oriented program and receive grade-point average credit for a semester abroad. Four fully integrated courses (NR 660, 661, 662, and 663 for 16 credit hours) focus on the ecological, resource management, and conservation and sustainability issues important to the natural environment, economy, and culture of New Zealand. Alternatively, students may participate in a two-course (NR 660, 662 for 8 credit hours) summer session. Contact Donna Dowal, (603) 862-2036.

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UNH Search:





College of Life Sciences and Agriculture

Introduction

Degrees

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Science in Forestry

Interdisciplinary Programs

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Life Sciences and Agriculture ▼

» <http://www.colsa.unh.edu/>

Bachelor of Arts ▼

The bachelor of arts degree is available in plant biology and zoology. Students must accumulate 128 credits, attain a 2.0 cumulative grade-point average, satisfy general education requirements, and complete a foreign language requirement (see [University Academic Requirements](#) for specific B.A. language requirements). Check individual departmental listings for specific major requirements and minimum acceptable grades in major courses.

Bachelor of Science ▼

The bachelor of science degree is available in all departments or programs except forestry. University requirements are the same as for the bachelor of arts degree, except that a foreign language is not required and minimum acceptable grades may differ in some programs. Check individual departmental or program listings for specific major requirements.

Animal Sciences

- Bioscience and Technology
- Equine Sciences
- Preveterinary Medicine

Biochemistry

Biology

- Ecology, Evolution, and Behavior
- General
- Marine and Freshwater
- Molecular, Cellular, and Developmental

Community and Environmental Planning

Dairy Management

Environmental Conservation Studies

Environmental Horticulture

Environmental and Resource Economics

Environmental Sciences

Ecosystems
Hydrology
Soil and Watershed Management

International Affairs (dual major)

Medical Laboratory Science

Clinical Chemistry
Clinical Hematology
Clinical Immunohematology
Clinical Microbiology

Microbiology

Nutritional Sciences

Plant Biology

Tourism Planning and Development

Wildlife Management

Zoology

Bachelor of Science in Forestry ▼

The bachelor of science in forestry is a professional, designated degree available to students majoring in forestry.

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College of Life Sciences and Agriculture

Introduction

Degrees

Interdisciplinary Programs

- Agribusiness
- Animal Behavior Minor
- Community Planning
- Genetics (GEN)
- Marine Biology
- Sustainable Living
- Water Resources Management
- Wetland Ecology

Programs of Study

Undergraduate Course Catalog 2009-2010

College of Life Sciences and Agriculture ▼

» <http://www.colsa.unh.edu/>

Agribusiness ▼

The agribusiness minor is designed to provide students in disciplines other than environmental and resource economics training in the economics and management of agricultural and other natural resource business firms. This program prepares students to work for private companies, governmental agencies, or nonprofit, nongovernmental organizations. Students who are interested in operating their own businesses will also find this minor very useful. The courses in the agribusiness minor emphasize the applications of economic and business management principles.

Required

EREC 411, Environmental and Resource Economics Perspectives

EREC 501, Agricultural and Natural Resource Product Marketing or MKTG 550, Survey of Marketing

EREC 504, Business Management for Natural Resource Firms

EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes

EREC 715, Linear Programming and Quantitative Models

For additional information, contact John M. Halstead, Environmental and Resource Economics Program coordinator, 310 Nesmith Hall, (603) 862-3914.

Animal Behavior Minor ▼

The animal behavior minor is designed for students who are interested in learning more about the mechanisms underlying the behavior of many different types of animals, as well as the reasons why certain behaviors may have evolved. Students interested in the animal behavior minor must complete a total of 20 credits of coursework (approximately five courses), from the list of courses below. Students must receive a grade of C- or better in each of these courses and no more than eight major requirement credits can be counted toward the minor. If a student is interested in using a relevant course that is not included in the following list, they

must seek permission from either Michelle Scott or Win Watson in the Department of Biological Sciences.

Required Courses:

ZOOL 713, Animal Behavior

ZOOL 777, Neurobiology and Behavior

Elective Courses (must take three, and one must be a psychology course):

PSYC 512, Psychology of Primates

PSYC 521, Behavior Analysis

PSYC 531, Psychobiology

PSYC 710, Visual Perception

PSYC 731, Brain and Behavior

PSYC 733, Drugs and Behavior

PSYC 735, Neurobiology of Mood Disorders

PSYC 737, Behavioral Medicine

PSYC 741, Animal Cognition

BCHM 702, Endocrinology

ZOOL 714, Ecology of Animal Behavior (Shoals)

ZOOL 733, Behavioral Ecology

Community Planning ▼

Land use and its impact on the quality of life has emerged as a major policy issue in New Hampshire, as well as at the national and global levels. Planning is a multidisciplinary profession that requires people who understand the technical tools and social concepts required to guide the selection and implementation of alternative schemes compatible with long term environmental and economic objectives. Students may supplement their major and general education course requirements with specific courses that will enhance their ability to find employment that requires knowledge of planning concepts and tools used in the formulation and implementation of effective land and resource planning by government agencies, nonprofit organizations, and private business firms.

Required

Group I-Theory and practice of planning (all courses required)

CD 415, Community Development Perspectives

CD 614, Fundamentals of Planning (prereq: EREC 411)

CD 777, Topics in Community Planning (prereq: CD 614)

Group II-Tools and applications in planning (choose one)

CD 672, New Hampshire Real Estate

CIE 505, Surveying and Mapping (coreq: MATH 425)

NR 757, Photo Interpretation and Photogrammetry

NR 760, Geographic Information Systems in Natural Resources

NR 609, Soils and Community Planning

NR 703, Watershed Water Quality Management (prereq: NR 504 or permission)

SOC 660, Urban Sociology

GEOG 590, Introductory Cartography

Group III-Resource management theory (choose one)

ECON 641, Public Economics (prereq: ECON 401, ECON 605, or permission)

EREC 572, Introduction to Natural Resource Economics

EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes (prereq: EREC 411)

EREC 627, Community Economics (prereq: EREC 411 or equivalent)

EREC 756, Rural and Regional Economic Development

TOUR 767, Social Impact Assessment

Group IV-Additional complementary electives (optional)

CD 794, Community Planning Internship

GEOG 582, Economic Geography

GEOG 583, Urban Geography

For additional information, contact Kelly L. Cullen, Community and Environmental Planning Program coordinator, 303 Nesmith Hall.

Genetics (GEN) ▼

<http://genetics.unh.edu/>

There is no baccalaureate degree program in genetics (only master's and Ph.D. degrees). However, undergraduates can complete a minor in genetics or can pursue their interests within the context of any of the following B.S. degree programs: biology, animal sciences, biochemistry, microbiology, plant biology, or zoology. Students interested in preparing for graduate work in genetics at UNH or elsewhere should contact the chairperson of the Genetics Program early in their undergraduate careers for advice on courses.

Genetics Minor

Requirements: Completion of 20 credits from the courses listed below, with a grade of C- or better, is required for a minor in genetics. At least two courses should be selected from each of the categories. Four (or more) credits of GEN 795, Investigations in Genetics, may be counted as one course toward fulfillment of the minor.

Category 1

GEN 705, Population Genetics
GEN 715, Molecular Evolution
GEN 723, Quantitative Genetics
GEN 753, Cytogenetics
GEN 766, Environmental Genomics
GEN 772, Evolutionary Genetics of Plants
ZOOL 665, Conservation Genetics

Category 2

BIOL 604, Principles of Genetics
GEN 706, Human Genetics
GEN 711, Genomics and Bioinformatics
GEN 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids
GEN 771, Molecular Genetics
GEN 774/775, Plant Biotechnology and Genetic Engineering
GEN 782, Developmental Genetics

Marine Biology ▼

The minor is designed to provide a foundation in marine biology and related sciences to any UNH undergraduate student with the exception of students enrolled in the marine and freshwater biology option of the biology program. It is offered through the Department of Biological Sciences. The minor consists of 20 credits with grades of C- or better and no pass/fail courses. No more than eight major requirement credits may be used towards the minor. All courses in the program are selected in consultation with the minor adviser (contact Larry Harris, Department of Biological Sciences).

Students should declare their intention to minor in marine biology before the end of the junior year. During the final term, students should apply to the dean to have the minor shown on their transcript.

Required

Five courses (20 credits); two of the five courses (eight credits) can count toward the major.

Introductory course in Marine Science (choose one):

ZOOL/PBIO 503, Introduction to Marine Biology

ESCI 501, Introduction to Oceanography

ZOOL 674, Field Marine Science

Four additional courses selected in consultation with the minor adviser.

In addition, students are encouraged to become involved in a research project, either by working in a professor's laboratory or by participating in the Undergraduate Ocean Research Project (TECH 797).

Sustainable Living ▼

Issues of sustainable living involve every aspect of life. Humans are part of, and dependent upon, healthy functioning ecosystems. Sustainable living requires learning to live with ecosystem limits. Students increase their knowledge and awareness of environmental issues and problems, gain an understanding of ecology, and develop thinking and communication skills in order to help solve complex problems and move humanity toward a more sustainable future.

Required Courses

1. Environmental Issues - One course below

NR 415, Global Environmental Change

NR 435, Contemporary Conservation Issues and Environmental Awareness

NR 502, Forest Ecosystems and Environmental Change

NR 650, Principles of Conservation Biology

NR 720, International Environmental Politics and Policies for the 21st Century

NR 724, Resolving Environmental Conflicts

ECON 607, Ecological Economics

EREC 608, Environmental Economics for Non-economists

GEOG 673, Environmental Geography

2. Ecology - One course below

NR 433, Wildlife Ecology

BIOL 541, General Ecology

NR 527, Forest Ecology

NR 660, Ecology and Biogeography of New Zealand

ZOOL 474, Intro to Marine Sciences (Summers at Appledore Island)

ZOOL 503, Intro to Marine Biology

3. NR 784, Sustainable Living

4. NR 601, Environmental Conservation and Sustainable Living Internship

5. NR 785, Systems Thinking for Sustainable Living

For additional information, contact Robert Eckert, Department of Natural Resources and the Environment, (603) 862-2508.

Water Resources Management ▼

Students in Biology, Environmental Conservation Studies, Forestry, Plant Biology, Wildlife Ecology, Environmental Engineering, Environmental and Resource Economics, Community and Environmental Planning, and related fields should consider a minor in Water Resources Management. There is a strong demand among consulting firms, state and federal agencies, and not-for-profit organizations for persons with knowledge and experience relevant to water resource management.

Required

1. NR 504, Freshwater Resources

2. NR 703, Watershed Water Quality Management

3. *Choose one of the following:*

EREC 676, Economics of Water Use and Quality Management

ESCI 705, Principles of Hydrology

NR 604, Watershed Hydrology

Choose from the list below or from category three above for eight additional credits:

NR 658, Introduction to Geographic Information Systems

NR 711, Wetland Ecology and Management

NR 716, Wetland Delineation

NR 719, Wetlands Restoration and Mitigation

NR 751, Aquatic Ecosystems

NR 760, Geographic Information Systems in Natural Resources

NR 542, Forestland Measurement and Mapping

ESCI 710, Groundwater Hydrology

ZOOL 708, Stream Ecology

ZOOL 717, Biology of Lakes

For additional information, contact William McDowell, Department of Natural Resources, (603) 862-2249.

Wetland Ecology ▼

Students in biology, environmental conservation studies, forestry, plant biology, environmental sciences, wildlife ecology, and related majors should consider obtaining a minor in wetland ecology. There is a strong demand among consulting firms, and state and federal agencies for employees with knowledge and experience relevant to wetland resource management.

Required

NR 504, Freshwater Resources or NR 703, Watershed Water Quality Management

NR 711, Wetland Ecology and Management

NR 716, Wetland Delineation or NR 719, Wetlands Restoration and Mitigation, or ZOOL 708, Stream Ecology

Recommended

PBIO 566, Systematic Botany

PBIO 625, Introduction to Marine Botany

PBIO 721, Microscopic Algae

PBIO 722, Marine Phycology

PBIO 747, Aquatic Higher Plants

MICR 713, Microbial Ecology and Evolution

NR 527, Forest Ecology

NR 765, Community Ecology

NR 751, Aquatic Ecosystems

NR 425, Field Dendrology

NR 501, Introduction to Soil Sciences

NR 602, Natural Resources and Environmental Policy

NR 621, Field Description of Soils

NR 706, Soil Ecology

ZOOL 725, Marine Ecology

For additional information, contact David Burdick, (603) 862-5129, or William McDowell, (603) 862-2249.





College of Life Sciences and Agriculture

Introduction

Degrees

Interdisciplinary Programs

Programs of Study

- Animal Sciences
- Biochemistry and Molecular Biology
- Biology
- Community and Environmental Planning
- Dairy Management
- Environmental and Resource Economics
- Environmental Conservation Studies
- Environmental Horticulture
- Environmental Sciences
- Forestry
- Genetics Program
- International Affairs (dual major)
- Medical Laboratory Science
- Microbiology
- Natural Resources
- Nutritional Sciences
- Plant Biology
- Tourism Planning and Development
- Wildlife Ecology
- Zoology

Undergraduate Course Catalog 2009-2010

College of Life Sciences and Agriculture ▼

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Animal Sciences (ANSC) ▼

» <http://www.animalsci.unh.edu/>

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Professor: William E. Berndtson, William A. Condon, Thomas L. Foxall, Robert L. Taylor Jr., Paul C. Tsang

Associate Professor: Patricia D. Bedker, Peter S. Erickson, David H. Townson

Clinical Professor: Richard A. French

Clinical Assistant Professor: Alice D. Roudabush, Inga F. Sidor

Lecturer: Christina Keim

Extension Professor: Catherine A. Violette

The undergraduate animal sciences program at UNH provides students with fundamental and applied education in nutrition, reproduction, genetics, physiology, pathology, cell biology, and large animal management. Courses are also offered in all areas of dairy and light horse production.

There are four major degree programs offered in the area of animal and nutritional sciences: a) animal sciences with options in equine sciences (equine industry and management, therapeutic riding, and equine science), bioscience and technology, and preveterinary medicine; b) dairy management; c) medical laboratory science with tracks in clinical chemistry, hematology, immunohematology, histology, and microbiology; and d) nutritional sciences. Kendall Hall houses the New Hampshire Veterinary Diagnostic Lab; an electron microscopy facility; and nutrition, physiology, and cell culture labs, all of which provide opportunities for students interested in basic animal sciences. The equine program maintains a light horse center and offers courses in management, equine diseases, equine discipline, physical performance, and horsemanship specializing in dressage and combined training. Dairy facilities include housing for more than one hundred milking-age cows in the new \$1.6-million Fairchild Dairy Teaching and Research Center. Responding to a need by farmers for scientific research to support

organic dairy efforts, UNH is the first land-grant university to have an organic dairy farm. It is a research center for organic production and management and an education center for organic dairy farmers, farmers considering the transition to organic, and students of sustainable agriculture. The organic dairy is housed at the Burley-Demeritt Farm. Miniature swine also are maintained at the Burley-Demeritt farm.

The animal sciences degree has three program options: 1) equine sciences, 2) bioscience and technology, and 3) preveterinary medicine. In addition to satisfying the specific requirements of the major and options, all animal sciences majors must complete the University general education requirements.

The UNH equine sciences option offers a unique and well-rounded program of study to students pursuing a career in the horse industry. The equine program's outstanding physical facilities are complemented by a strong, science-based curriculum taught by an experienced and talented faculty. Students graduating from the UNH equine program receive a B.S. in animal sciences with a concentration in equine sciences. The core curriculum of study provides students with a solid background in the biological and equine sciences. Students then choose one of three tracks for career specialization: I) equine industry and management, II) therapeutic riding, III) equine science.

Students in the bioscience and technology option often specialize in nutrition, reproduction, genetics, or cell biology. This curriculum prepares students for advanced training in graduate school programs or in various medical professions; entry-level positions in biomedical, biotechnical, pharmaceutical, and other scientific companies; or technical positions in many research and medical units.

The preveterinary medicine option is designed to meet the academic requirements of most veterinary schools. Requirements may be met within three years, allowing students to apply to veterinary school during their senior year. However, most students finish their senior year, thus allowing more time for electives, concentration in areas of secondary interest, and completion of graduation requirements.

Employers in agriculture prefer to hire an agricultural graduate with extensive knowledge in a related field (e.g., computer science) rather than a graduate in one of these areas with no knowledge of agriculture. Hence, animal science students are encouraged to obtain training in a field that complements study in animal sciences. Such areas may include cell biology, biotechnical skills, communications, computer science, education, or business. This is generally accomplished by either taking a concentration of courses or obtaining a minor in a specialty area. Attainment of sufficient training in a specialty area enhances opportunity for employment. A careers course is offered to help students select and prepare for a particular career area.

Development of optional career goals is important for preveterinary students. Admission to schools of veterinary medicine is highly competitive. Therefore, students in this option are urged to prepare for alternative careers as they complete preveterinary requirements.

All animal sciences majors are required to complete ANSC 406; CHEM 403 and 404*; and ENGL 501 (or ENGL 419, 502, or 503; or ANSC 543). In addition, the requirements in one of the three following options must also be completed:

Bioscience and Technology Option

BIOL 411-412; PHYS 401-402; MATH 424B and BIOL 528 (or SOC 502 or PSYC 402); MICR 503 or BIOL 541; ANSC 511-512 or ZOOL 518 and 625/626; CHEM 545 or 651-652; BIOL 604; BCHM 658/659 or 751-752; ANSC 750; and one 700-level ANSC course.

Equine Sciences Option

Requirements for all Equine Sciences students

AAS 237, Equine Handling and Care Techniques
ANSC 404, Intro to Equine Sciences (waived for TSAS equine management graduates)
ANSC 406, Careers in Animal Science
ANSC 600, Field Experience (waived for TSAS equine management graduates)
ANSC 697, Equine Seminar (waived for TSAS equine management graduates)
BIOL 528, Applied Statistics
ENGL 501, Intro to Prose Writing (or ENGL 419 or 503 or ANSC 543)
EREC 411, Resource Economics Perspectives

Track I Equine Industry and Management

Core Courses

AAS 228, Anatomy and Physiology of Domestic Animals
AAS 239, Fundamentals of Animal Health
ANSC 432, Animal Forages
AAS 235, Animal Nutrition
AAS 246, Animal Business Applications
ANSC 620/622, Equine Diseases
ANSC 625, Equine Sports Medicine and Lameness
ANSC 724, Reproductive Management and Artificial Insemination
BIOL 412, Principles of Biology II
EREC 504, Business Management for Natural Resource Firms

Track Options (choose five of the following)*

AAS 226, Equine Conformation and Lameness

AAS 247, Applied Equine Management
AAS 253, Equine Competition Management
ADMN 502, Financial Accounting
ANSC 420/444B, Horse in History
ANSC 507, Colt Training
ANSC 565, Principles of Horse Trials Management
ANSC 602/444, Animal Rights
ANSC 640, Principles of Riding Instruction
ANSC 641/642/643, Teaching Specialties
ANSC 701, Physiology of Reproduction
EREC 501, Agriculture and Natural Resource Product Marketing
RMP 554, Recreational Business Management
MGT 580, Introduction to Organizational Behavior
ZOO 713, Animal Behavior

*For classes less than three credits, two must be taken together to count as one requirement.

Suggested electives

AAS 234, Equipment and Facilities Management
AAS 278, Applied Animal Science Computer Applications

Track II Therapeutic Riding

Track Requirements

AAS 226, Equine Conformation and Lameness
AAS 247, Applied Equine Management
AAS 252, Equine Health Management
or ANSC 620/622, Equine Diseases and Disease Clinic
ANSC 500, Methods of Therapeutic Riding
ANSC 795, Investigations
BIOL 412, Principles of Biology II
EREC 504, Business Management for Natural Resource Firms
or AAS 246, Animal Business Applications
ZOO 507/508, Human Anatomy and Physiology

Track Options (choose five of the following)

ANSC 507, Colt Training
ANSC 640 & 643, Teaching Specialties
CSL 202, Introduction to Nonprofit Organizations
CSL 207, Introduction to Nonprofit Budgeting and Accounting Practices
CSL 208, Essentials of Fundraising for Community-Based Organizations

CSL 209, Essentials of Grant Writing for Community-Based Organizations
COMM 520, Survey of Communication Disorders
or COMM 533, Sign Language
HHS 740, Collaborative Services for Children with Special Needs
MGT 580, Introduction to Organizational Behavior
OT 510, Exploring Occupational Therapy and Occupation
OT 500, The Behavior and Development of Children
or FS 525, Human Development
RMP 501, Recreation Services for Individuals with Disabilities

Suggested electives

AAS 254, Animal Assisted Activities and Therapy
AAS 251, Human/Animal Bond
AAS 278, Applied Animal Science Computer Applications

Track III Equine Sciences

Track Requirements

ANSC 511/512, Anatomy and Physiology
ANSC 609, Principles of Nutrition
ANSC 612, Genetics of Domestic Animals
ANSC 620, Equine Diseases
ANSC 622, Equine Disease Clinic
ANSC 625, Equine Sports Medicine and Lameness
ANSC 724, Reproductive Management and Artificial Insemination
or ANSC 701, Physiology of Reproduction
BIOL 411/412, Principles of Biology I and II
CHEM 403/404, General Chemistry

Track Options (choose five of the following)

AAS 226, Equine Conformation and Lameness
AAS 235, Animal Nutrition
AAS 239, Fundamentals of Animal Health
ANSC 432, Animal Forages
ANSC 701, Physiology of Reproduction
ANSC 704, Principles of Pathobiology
ANSC 718, Mammalian Physiology
ANSC 724, Reproductive Management and Artificial Insemination
ANSC 750, Nutritional Biochemistry
BCHM 658/659, General Biochemistry and General Biochemistry Lab
BIOL 604, Principles of Genetics

CHEM 545/546, Organic Chemistry and Organic Chemistry Lab

ZOOL 713, Animal Behavior

Diploma program providing preparation for NARHA certification

ANSC 404, Introductory Equine Science

or AAS 237, Equine Handling and Care Techniques

ANSC 402, Horsemanship

KIN 501, First Aid-Responding to Emergencies

ANSC 500, Methods of Therapeutic Riding

ANSC 795, Investigations

a seminar on teaching therapeutic riding

Pre-veterinary Medicine Option

BIOL 411-412; PHYS 401-402; MATH 424B; BIOL 528; MICR 503; ANSC 511-512; BIOL 604;

CHEM 651/652 and 653/654; BCHM 658/659; ANSC 750; and one 700-level ANSC course.

(For course requirements for the B.S. degree in Dairy Management, see Dairy Management.)

General Science Certification

(See Department of Education and COLSA/Degrees.)

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^ [back to top](#)

Biochemistry and Molecular Biology (BCHM) ▼

» <http://www.biochemistry.unh.edu/>

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Professor: Thomas E. Brady, Richard H. Cote, Clyde L. Denis, Thomas M. Laue, W. Kelley Thomas

Research Professor: Vernon N. Reinhold

Affiliate Professor: Stacia A. Sower, Martin Stokes

Associate Professor: John J. Collins, Andrew P. Laudano

Assistant Professor: Feixia Chu

Research Assistant Professor: Kevin Culligan, Jennifer Durant

The field of biochemistry and molecular biology encompasses a broad range of the molecular life sciences, from biophysics and biochemistry to applied biology and medicine. The B.S. in biochemistry is based on a solid foundation in biology, chemistry, physics and math, along with advanced courses in molecular biology, biochemistry, cell biology, and genetics. The combined B.S.-M.S. degree program allows outstanding students with well-defined career plans to

augment their bachelor's degree program with an intensive research program and graduate-level course work leading to the master's degree.

The biochemistry and molecular biology program offers specialized training in the areas of molecular genetics, signal transduction, gene regulation, bioinformatics, molecular evolution, cancer biology, macromolecular interactions, glycobiology, lipid metabolism, endocrinology, genomics, and proteomics. Undergraduate students are encouraged to become involved in research projects sponsored by external granting agencies such as the National Institutes of Health, the National Science Foundation, and others.

Students interested in the biochemistry major should consult with a biochemistry faculty member as early as possible to ensure the most effective curricular planning.

For first-year students with a strong high school preparation in both chemistry and mathematics (including calculus), the following schedule is recommended:

Fall

BIOL 411, Principles of Biology I

CHEM 403, General Chemistry I

MATH 425, Calculus I

ENGL 401, First Year Writing

Spring

BIOL 412, Principles of Biology II

CHEM 404, General Chemistry II

MATH 426, Calculus II

General education course

For first-year students lacking a strong background in chemistry and mathematics, the following schedule is recommended:

Fall

BIOL 411, Principles of Biology I

CHEM 403, General Chemistry I

ENGL 401, First Year English

General education course

Spring

BIOL 412, Principles of Biology II
CHEM 404, General Chemistry II
MATH 424B, Calculus for Life Sciences
General education course

Bachelor of Science in Biochemistry

The bachelor's degree in biochemistry consists of a set of core requirements (Group I) and a set of required electives from several subject areas (Groups II-V):

I. All of the following

BIOL 411, 412, Principles of Biology I, II
CHEM 403, 404, General Chemistry I, II
MATH 425, 426, Calculus I, II, or
424B, Calculus for Life Sciences and
BIOL 528, Applied Biostatistics I
MICR 503, General Microbiology
BIOL 604, Principles of Genetics
BIOL 605, Eukaryotic Cell and Developmental Biology
CHEM 547/549 and 548/550, Organic Chemistry, or CHEM 651/653 and 652/654, Organic
Chemistry, or CHEM 545/546, Organic Chemistry, and BCHM 658/659, General Biochemistry
PHYS 401, 402, Introduction to Physics I, II, or PHYS 407, 408, General Physics I, II
BCHM 751-752, Principles of Biochemistry
BCHM 755, Laboratory in Biochemistry and Molecular Biology

II. One of the following molecular biology courses

BCHM 711, Genomics and Bioinformatics
BCHM 766, Environmental Genomics
BCHM 771, Molecular Genetics
BCHM 782, Developmental Genetics
BCHM 790, Current Topics in Biomedicine
GEN 715, Molecular Evolution

III. One of the following biochemistry courses

BCHM 702, Endocrinology
BCHM 750, Physical Biochemistry, or CHEM 683, 684, Physical Chemistry I, II
BCHM 763, Biochemistry of Cancer
BCHM 790, Current Topics in Biomedicine
BCHM 794, Protein Structure and Function

IV. One of the following laboratory techniques courses

BCHM 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids

BCHM 799, Senior Thesis (4 cr.)

BCHM 795, Investigations in Biochemistry and Molecular Biology (4 cr.)

ANSC 714, Research Methods in Endocrinology

ANSC 751, Cell Culture

CHEM 756, Advanced Organic Chemistry Laboratory

MICR 602, Pathogenic Microbiology

MICR 704, Genetics of Prokaryotic Microbes

MICR 705, Immunology

MICR 706/708, Virology and Virology Lab

MICR 717, Microbial Physiology

PBIO 753, Cytogenetics

PBIO 774/775, Plant Biotechnology and Genetic Engineering

V. One additional course from groups II-IV

The biochemistry curriculum provides most of the required and recommended courses for students seeking admission to professional schools in medicine, dentistry, veterinary medicine, and pharmacy. Students who major in biochemistry can also use their training in conjunction with advanced degrees in law and business.

Approximately 50 percent of the students who graduate with a major in biochemistry seek advanced degrees. Many biochemistry majors go on to attend graduate school in all areas of the life and biomedical sciences, especially graduate programs in genetics, molecular biology, biochemistry, cell biology, and chemistry. Recipients of an M.S. degree are more attractive to employers and often obtain better positions, greater salaries, and more responsibility and independence. A Ph.D. degree is eventually required for those who wish to direct research programs, be involved in state-of-the-art scientific research, become a professor in a college or university, or obtain an executive position in a science-related area of industry or government.

Students obtaining the B.S. in biochemistry enjoy excellent job prospects immediately upon graduation. There is currently a demand for skilled research technicians in biotechnology companies, pharmaceutical companies, government agencies, forensics, academic research laboratories, and hospitals. Students graduating in biochemistry have knowledge that is valuable in the fields of management, sales, marketing, regulatory affairs, technical writing, and scientific journalism. With additional courses in education, the B.S. in biochemistry also qualifies graduates to teach at the elementary, junior high, and high school levels.

A combined Bachelor of Science and Master of Science in Biochemistry

This is a five-year program leading to a combined bachelor and master's degree in biochemistry. It is designed for highly motivated and qualified students seeking additional training to further their career goals as a researcher in the life sciences.

Admission Policy

Admission to the combined degree program is highly competitive. Students wishing to pursue this option must have a grade-point average greater than 3.2 at the time of application. A thesis adviser must be identified during the junior year, and the approval of the adviser and department chairperson must be obtained. Prior to the first semester of the senior year, the student must formally apply to the Graduate School and receive early admission. The requirement for the Graduate Record Examinations is waived for combined degree applicants.

Requirements

Thirty credits of graduate level (800-900) coursework (including dual credit courses) must be completed. Six to eight credits must be taken during the senior year, and are applied to both the B.S. and M.S. requirements. All other requirements for the M.S. degree (see Graduate School catalog) must be followed, including completion of preliminary exams, conducting a research project, and passing an oral examination based on the master's thesis project.

Suggested Program

Because of the intensive nature of the combined degree program, the thesis research project should be initiated as early as possible. A guidance committee should be established no later than the beginning of the fifth year to approve the student's proposed course of study. The following schedule is recommended:

Junior year

Identify thesis adviser and begin research project during the summer following junior year.

Senior year

Senior thesis (BCHM 799) during both semesters and the following summer, along with two dual-credit courses (800/900 level).

Fall semester, fifth year

Two 800/900 level courses (6-8 cr.)

BCHM 997 (1 cr.)

BCHM 899 (5 cr.)

Spring semester and summer, fifth year

One 800/900 level course (3-4 cr.)

BCHM 998 (1 cr.)

BCHM 899 (5 cr.)

Special topics (1-2 cr. as needed)

Research should be completed and the master's thesis defended during the summer.

Support

Students in the B.S./M.S. program are eligible for support through University Financial Aid. Additional support may be available from the student's adviser.

General Science Certification

See [Department of Education](#) and [COLSA/Degrees](#).

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^ [back to top](#)

Biology (BIOL) ▼

» <http://www.biology.unh.edu/>

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Affiliate Professor: Ronald E. Rompalla

Associate Professor: Elizabeth P. Boulton, James E. Byers, Andrew P. Laudano, James E. Pollard

The biology program is designed to provide a strong, broad background in biological sciences to students interested in education in the life sciences. The Biology program integrates theoretical and practical (hands-on laboratory and field work) courses in different aspects of the biology of animals, microbes, and plants. The curriculum is designed to reflect the diversity of the biological systems in nature. It encompasses the study of structural and functional relationships of living organisms at the molecular, cellular, and organismal level; the interactions of the living systems with the environment and with each other; and the evolutionary relationships of various forms of life. The goal is to create a facilitative environment for those with a scholarly interest in the biological sciences, and to extend their understanding, awareness, and appreciation of the diversity of the biological sciences.

The program is aimed at promoting excellence in biological science education by involving

undergraduate students in strong interaction with faculty both in the classroom and research laboratories, and encouraging the development of quality undergraduate programs in all aspects of biology.

The biology program prepares students for graduate work in the biological, medical and agricultural sciences, and for job opportunities in industry (biomedical, pharmaceutical, agrochemical, environmental, and biotechnological) and governmental research, secondary school teaching or a general education about living organisms. Completion of the four-year undergraduate program plus a fifth-year internship will be necessary for biology teaching certification. Students who plan to enter medical, dental, or related professional schools are advised to confer with their faculty adviser to build the requirements for these programs into their academic majors.

Courses in the biology program are selected from departments that constitute the biological sciences community at UNH. The flexibility of the curriculum allows students wide selection of courses in various departments. Students in the biology major take a common core curriculum involving introductory and upper level courses. They select one of four areas of concentration. These options are: 1) general biology; 2) ecology, evolution, and behavior biology; 3) marine and freshwater biology; and 4) molecular, cellular, and developmental biology.

While students are advised to declare the biology major as incoming first-year students to assure adequate program planning, transfer into the program at a later stage is also possible. Students who wish to concentrate in a specific area of biological sciences other than the options within the biology program should consider a major in animal sciences, biochemistry, microbiology, plant biology, or zoology. The biology core curriculum is followed by students in all of these programs. This makes changing majors a very simple process.

Biology Core Curriculum

All biology and several of the biological sciences majors begin with the biology core curriculum. The biology courses in the core curriculum constitute an integrated sequence of courses imparting basic knowledge of biology in order to expose students to the breadth of knowledge inherent in the biological sciences. The biology core allows a student to obtain a broad background in biology and related physical sciences and math. While it is recommended that the core curriculum be substantially completed in the first two years, students are encouraged to consult with their academic advisers to select one or more courses in their major during the sophomore year that may provide a gateway to the major. This may result in delaying one or more of the core courses in the junior year. By the end of the sophomore year, students are expected to have selected a departmental major or one of the four above-mentioned biology

options leading to a B.S. degree.

Biology Core Curriculum Courses

BIOL 400, Professional Perspectives on Biology¹

BIOL 411 & 412, Principles of Biology I, II²

BIOL 541, General Ecology

MICR 503, General Microbiology

BIOL 604, Principles of Genetics

CHEM 403 & 404, General Chemistry

CHEM 545/546 Organic Chemistry and BCHM 658/659, General Biochemistry, or CHEM 651/653 and CHEM 652/654, Organic Chemistry³

MATH 424B, Calculus for Life Sciences or 425, Calculus I

BIOL 528, Applied Biostatistics I, or MATH 426, Calculus II⁴

PHYS 401 and 402, Introduction to Physics

ENGL 501, Introduction to Creative Nonfiction, or equivalent³

EDUC 500, Exploring Teaching⁵

Typically, students take BIOL 400; BIOL 411 & 412; CHEM 403-404; and Calculus 424B in the first year, and then complete the remainder of their core requirements during the sophomore and junior years.

In addition to the core curriculum, the requirements for individual options are described separately.

¹BIOL 400 is required only for first-year biology majors.

²BIOL 411 and 412 are not sequential and may be taken in reverse order.

³CHEM 651/653 and 652/654 and ENGL 501 are required for premedical or affiliated professional programs.

⁴MATH 426, Calculus II can be substituted for Statistics, but we recommend Statistics.

⁵Required only for those preparing for teacher certification.

Academic Requirements

To receive the B.S. degree in biology, students must complete 128 credit hours with a 2.0 cumulative grade-point average. Courses must include all UNH general education requirements, biology core curriculum requirements, and the requirements for the selected option. A minimum grade of C- is required in all biological science courses that are counted towards the requirements for a degree in biology (all four options). The only exception is that a passing grade below a C- will be accepted in a student's first biology course (BIOL 411 or 412).

Students who expect to compete successfully for post-baccalaureate programs should attain a cumulative GPA of 3.0 or higher by the end of the sophomore year and maintain it at that level.

Students should consult with their academic advisers during their freshman and sophomore years for assistance in determining the most appropriate option or major for their professional goals. Since biology core courses are required of all biological science majors, it is relatively easy to change majors within the biological sciences during this period.

Note: It is strongly recommended that students participate in an exchange semester at another university or in a field-oriented program or internship. There are many exchange opportunities available in which a full semester of credits toward the major may be earned. In addition, students should explore the courses at the Shoals Marine Laboratory (SML), which provides an excellent setting for several “field-oriented” courses during the summer. Often there is financial support available for the SML programs (see the SML Web site for details (www.shoals.unh.edu) or the Cornell Web site at www.sml.cornell.edu). It is further recommended that students explore possibilities of one or more semesters of Independent Investigation (research projects). For details, students should contact their adviser or the Biology program office. Financial support is available for most of these programs.

Premedical and other pre-health professional students should visit the premedical office in Hood House for additional information on requirements for specific professional schools. The following elective courses will be helpful in preparing for admission to post-baccalaureate programs in the health professions and for their required aptitude examinations: BCHM/ANSC 702, ZOOL 518, ZOOL 625/626, BIOL 605, BCHM 751/752, ANSC 511/512.

One 600, 795, or 796 experience totaling three or more credits or any two 795-796 experiences of two credits each can fulfill one course requirement in any category with adviser approval. A Petition for Academic Variance approved by the biology program director is required to count 795-796 experiences for more than one major required course. Students should check the UNH WEBCAT (webcat.unh.edu), the biology Web site (biology.unh.edu), and the UNH online catalog for updates and current course offerings.

Biology Options

In order to receive a B.S. in biology, a student may choose from one of the four biology options. These options are: 1) general biology; 2) ecology, evolution, and behavior biology; 3) marine and freshwater biology; and 4) molecular, cellular, and developmental biology. A complete list of approved courses in each option is available from the student’s adviser, the biology program office, and the biology program Web site at www.biology.unh.edu.

The *general biology option* within the biology major provides broad-based training in the biological sciences for students who prefer not to specialize at the undergraduate level. Students must choose eight courses in addition to the biology core curriculum courses as specified in the categories listed in the option requirements (see Web site www.biology.unh.edu). Within the biology core, BIOL 528 is preferred to MATH 426; however, either is acceptable, and the sequence CHEM 545/546-BCHM 658/659 is preferred to CHEM 651/653-652/654, for all students in the option, except for those who are pre-health professionals. Corequisite lecture and lab courses count as one course. Courses listed in more than one category will satisfy requirements in only one category.

The *marine and freshwater biology (MFB) option* provides broad-based training in the aquatic biological sciences for students who prefer to take additional courses in the area of marine and freshwater biology. Students interested in aquaculture and fisheries may also choose this option by taking appropriate courses in consultation with their adviser. Students must choose eight courses in addition to the biology core curriculum courses to fulfill the requirements of this option. All students must take Biology of Lakes (PBIO/ZOOL 717) or Field Studies in Lake Biology (PBIO/ZOOL 719). For additional course requirements, students should visit the biology Web site at www.biology.unh.edu.

The *molecular, cellular, and developmental biology (MCDB) option* provides an opportunity for broad training in molecular, cellular, and developmental biology, and the biotechnology area for students who would like to achieve limited specialization in this field. Students interested in the interdisciplinary fields of genetics, genomics, and bioinformatics may also choose this option by taking appropriate courses in consultation with their adviser. This is in addition to broad-based training in the basic areas of biology and related physical sciences covered in the core curriculum. Students choose eight courses from the list of approved courses (available on the Web at www.biology.unh.edu) in addition to biology core curriculum courses, in order to complete this option. The sequence CHEM 651/653-CHEM 652-654 is preferable to CHEM 545/546 and BCHM 658/659.

The *ecology, evolution, and behavior (EEB) option* within the biology program provides broad training in organismal and environmental biology, and provides an opportunity for limited specialization in the field of ecology, conservation, evolution, or behavior. Students must choose eight courses in addition to the biology core curriculum to complete this option. All students are required to take ZOOL 690. An additional seven courses should be selected as specified in the list of approved courses (www.biology.unh.edu). Within the biology core, BIOL 528 is preferred to MATH 426; however, either is acceptable.

Prehealth Professional Program

Students who wish to pursue postgraduate degrees in the health care professions should visit the premedical advising office in Room 102, Hood House. For more information, call (603) 862-2064 or visit the program's Web page at www.unh.edu/premed-advising.

Biology Teacher Certification and General Science Certification

Biology teacher certification for students preparing to teach high school biology may be obtained through the Department of Education's five-year, undergraduate-graduate degree program. Students are required to take EDUC 500 (preferably in the sophomore year), earn a bachelor's degree in one of the biological sciences, and complete a fifth year, which includes an internship and coursework leading to a master's degree in education. General science certification for students preparing to teach science in middle and junior high schools can be obtained through the Department of Education's general science certification program. For further information, see Education, or contact the Department of Education's teacher education coordinator.

Biology Minor

A biology minor may be earned by completing the following requirements: 1) BIOL 411-412 or PBIO 412 and ZOOL 412; 2) one course from each of the three major organism groups: a) animals (ANSC or ZOOL courses), b) microbes (MICR courses), and c) plants (PBIO courses); 3) two additional biological science courses at the 600-700 level.

Students interested in a biology major or minor should contact the Biology Program Office, (603) 862-3205.

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^ [back to top](#)

Community and Environmental Planning (CEP) ▼

» <http://www.plan.unh.edu/>

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Professor: Lyndon E. Goodridge, Bruce E. Lindsay

Associate Professor: Mimi Larsen Becker, Kelly L. Cullen, Alberto B. Manalo, Douglas E. Morris

Lecturer: Mary Adamo Robertson

Extension Professor: Michael R. Sciabarrasi

Extension Associate Professor: Charles A. French

The community and environmental planning program prepares students for professional careers as local government administrators, town or regional land-use planners, and community facilitators and educators. It is an applied social science degree program that gives the student an understanding of the interrelated social, economic, political, environmental, and technical factors that influence a community and its residents. The curriculum takes an interdisciplinary approach and includes field experience and internships as vital components that complement classroom and independent research.

Students majoring in community and environmental planning are encouraged to concentrate in one of three areas: 1) community change and development, 2) community public administration, and 3) community and regional planning. These areas of specialty provide the necessary background and training to prepare graduates for entry-level positions with local municipalities and agencies throughout the nation. The program also provides a firm base for graduate study in a variety of areas such as regional planning, public administration, rural sociology, economic development, and law.

A minor in community and environmental planning provides opportunities for students in other areas to better understand the application of their knowledge to specific community issues. The minor complements majors in both technical fields and liberal arts.

Local municipalities in New England are turning to full-time professional administrators to assume responsibility for the day-to-day administration, management, and planning activities that were previously carried out by part-time town officials. Officials at the New Hampshire Municipal Association estimated that New Hampshire needs, each year, at least twenty-five new graduates in community and public administration to fill local government professional needs. In addition to professional administration or planning positions in local or regional government, employment opportunities are also available with public agencies and organizations at the state, national, and international levels.

Students interested in the challenges of community and environmental planning should consult with Kelly L. Cullen, program coordinator, Department of Natural Resources and the Environment, 303 Nesmith Hall, (603) 862-4811.

Required Courses

CD 415, Community Development and Planning Perspectives, or CSL 201, Intro to CSL

CD 508, Applied Community Development

CD 614, Fundamentals of Planning

CD 777, Topics in Community Planning

CD 794, Community Planning Internship, or CD 793, Community Administration Internship

EREC 411, Environmental and Resource Economics Perspectives

EREC 525, Statistical Methods and Applications

EREC 606, Land Economic Perspectives: Uses, Policies, and Taxes

EREC 627, Community Economics

TOUR 700, Marketing Communications Research: Methodological Foundations

TOUR 705, Ecotourism: Managing for the Environment, or TOUR 767, Social Impact Assessment

MATH 420, Finite Mathematics

CSL 204, Managing Change and Conflict in Communities

CD 672 New Hampshire Real Estate

POLT 502, State and Local Government, or POLT 551, Global Urban Politics

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^ [back to top](#)

Dairy Management (ANSC) ▼

» <http://www.dairy.unh.edu/>

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Associate Professor: Peter S. Erickson

Assistant Professor: Andre F. Brito

Extension Assistant Professor: Michal Lunak

The dairy management program is designed to provide students with solid training in areas important to the successful management of a dairy enterprise, for employment in related agribusinesses (e.g., pharmaceutical and feed industries), or for those wishing to pursue additional training leading to the M.S. or Ph.D. degree in dairy science or its related disciplines. Dairy management students receive training in areas such as nutrition, reproduction, diseases, genetics, lactation physiology, forages, agribusiness finance, personnel management, computer science, and public relations. In addition, junior and senior students enrolled in this program will be given complete responsibility for managing the UNH teaching herd with other students, acquiring actual management experience along with their basic subject matter training. The Fairchild Teaching and Research Center, a modern dairy facility, houses approximately one hundred milking cows plus a similar number of nonlactating animals. The Burley-Demeritt Organic Dairy Farm houses 45 milking cows and a similar number of nonlactating animals.

In addition to general education requirements, a typical dairy management student will take the

following courses:

First Year

ANSC 408 (optional), 409, 410, 430; BIOL 411; CHEM 403-404; ENGL 401; EREC 411

Second Year

ANSC 432, 511, 512, 543, 650; CS 401; PBIO 421; EREC 504

Summer Internship

ANSC 600

Third Year

ANSC 609, 612, 530, 650, 701 and/or 715, 710

Fourth Year

ANSC 698, 708, 727, 728; MGT 580 or 713

Students interested in pursuing graduate studies take MATH 424B, CHEM 545-546, BCHM 658-659, and MICR 503 in lieu of PBIO 421 and CS 401.

» [Click to view course offerings](#)

^ [back to top](#)

Environmental and Resource Economics (EREC) ▼

» <http://www.envecon.unh.edu/>

» [Click to view course offerings](#)

Professor: Lyndon E. Goodridge, Bruce E. Lindsay

Associate Professor: Kelly L. Cullen, Alberto B. Manalo, Douglas E. Morris

Extension Professor: Michael R. Sciabarrasi

Extension Associate Professor: Charles A. French

This program offers training in environmental and resource economics, including public resource policy, resource management, natural resource and environmental economics, and community economics and finance. The curriculum emphasizes applied economics in the context of public policy. Training is also available in agricultural economics, including agribusiness, small business management, food marketing, agricultural policy, and world food supplies.

Students majoring in environmental and resource economics will normally concentrate in one of the following three areas: environmental and natural resource economics, agricultural economics, or community economics. In addition, students must satisfy general education requirements, which lead to a broad university education. Majors interested in the economic or business aspects of agriculture and natural resources will be expected to take courses in the biological sciences.

Students majoring in any of the social science, life science, and agriculture departments of the University may find it to their advantage to elect courses or a minor in environmental and resource economics or agribusiness. By doing so, their basic training can be supplemented in a specific area of interest, such as resource development and natural resource policy for social science majors, farm management and agricultural marketing for agricultural majors, and community economics and finance for students interested in local government and development.

Required Courses

All of the following:

ECON 401, Principles of Economics (Macro)

ECON 605, Intermediate Microeconomic Analysis

ECON 611, Intermediate Macroeconomic Analysis, or ECON 635, Money and Banking

EREC 411, Environmental and Resource Economics Perspectives

EREC 504, Business Management for Natural Resource Firms

EREC 525, Statistical Methods and Applications

MATH 420, Finite Mathematics, or MATH 424B, Calculus for Life Sciences

At least five of the following, of which two must be 700 level:

EREC 501, Agricultural and Natural Resource Product Marketing

EREC 572, Introduction to Natural Resource Economics

EREC 606, Land Economics Perspectives: Uses, Policies, and Taxes

EREC 627, Community Economics

EREC 633, Economics of Travel and Tourism

EREC 708, Environmental Economics

EREC 715, Linear Programming and Quantitative Models

EREC 756, Rural and Regional Economic Development

TOUR 700, Marketing Communications Research: Methodological Foundations

Students who major in environmental and resource economics are qualified for a wide variety of opportunities upon graduation. Private business, public institutions, and government

agencies currently have a strong demand for specialists trained in natural resource development; land and water use policy; natural resource and small business management; agricultural, fisheries, and forestry marketing; and community development. In many cases, students may wish to improve their qualifications by pursuing more specialized graduate studies in one or more of the above areas.

Departmental Honors

Honors in environmental and resource economics will be awarded to students who complete 16 credits of honors courses in environmental and resource economics (including a minimum of four credits of a senior research project), and who maintain a minimum grade-point average of 3.2 in the major. Students interested in the environmental and resource economics honors program should contact the environmental and resource economics coordinator in Nesmith Hall for more information.

Students interested in a major or minor in environmental and resource economics should contact John M. Halstead, 310 Nesmith Hall, (603) 862-3914.

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^ [back to top](#)

Environmental Conservation Studies ▼

» <http://www.envconservation.unh.edu/>

Professor: John E. Carroll, Russell G. Congalton, Robert T. Eckert, Theodore E. Howard, Paul C. Johnson, William W. Mautz

Associate Professor: Mimi Larsen Becker, Thomas D. Lee

The environmental conservation studies (ECS) major gives students a broad, interdisciplinary background for developing their understanding of environmental and resource problems and what is needed to solve them. It also provides a solid foundation for the development of critical thinking skills. The program is designed to ensure that graduates possess broad-based integrated knowledge of how local and global ecological systems work as well as an understanding of the interdependency between people and the environment. Building on a solid natural science base, students discover how political, institutional, and economic systems relate to environmental quality and learn ways to sustainably manage human activities within the constraints of the Earth's ecological systems. Students acquire a set of basic skills and problem solving tools that enable them to tackle complex environmental conservation problems. Graduates will have gained hands-on practical experience integrating and applying their accumulated knowledge and skills in real world situations.

International education to support ECS students' educational goals is encouraged as a means to broaden their perspectives and knowledge, particularly through the UNH-Ecoquest New Zealand field studies program. ECS students may also take advantage of a wide range of undergraduate research opportunities.

ECS students meet a set of 19 core requirements, through which they develop a foundation in natural resources, biology, ecology, chemistry, water quality management, soils, natural resources and environmental policy, economics, environmental ethics, and environmental law. They also acquire basic statistics, oral communication, writing and geographic information skills and develop their abilities to apply their knowledge and skills professionally through a practicum (internship) and a capstone course.

In addition to the core, each student chooses a 36-credit-hour specialization, which may be selected from a range of natural resources and environmental policy and management course sequences that provide a specific focus as each student develops an area of academic competency and the skill sets to help meet her or his career goals. For example, students can choose specializations in the following subject areas: land and water resource policy and management; international environmental and natural resource policy and sustainable development; environmental education, communication, public participation and leadership. Or a student may, in consultation with his or her adviser, design a specialization.

Students with strong interests in field-based natural resource management careers can choose a focus on a particular land or water natural resource system, such as forest resources, marine and coastal resources, watersheds or wetlands, or food production to build their expertise. Students with interests in environmental policy, politics, law and administration, or sustainable community development may want to gain additional background through selected courses in the social sciences. Those with interests in environmental education may want to obtain a teaching certificate or develop expertise in outdoor education or leadership. Others may want to pursue interests in environmental communication through courses in journalism or the visual or theater arts. Many undergraduates in ECS participate in faculty research or gain experience through UNH's undergraduate research opportunities programs. Students with particular interests in international environmental studies may want to participate in the dual major in International Affairs.

Students graduating with a B.S. degree in environmental conservation studies, with excellent academic records, are qualified for graduate work in environmental studies, environmental sciences, natural resources and environmental policy, resource management, conservation biology, environmental law, or environmental education and communication. ECS graduates

work with private or nongovernmental conservation organizations; local, state or federal natural resources or planning agencies; industrial firms (e.g., waste management, compliance, land protection, watershed management, community planning, energy conservation, etc.); in primary and secondary education; field studies programs; journalism; and specialized environmental consulting firms. A number of graduates also choose to serve in the Peace Corps or with AmeriCorps prior to making more specific career path commitments.

Degree Core Requirements

NR 400, Professional Perspectives in Natural Resources

NR 401, Introduction to Natural Resources

PBIO 412, Introductory Botany and ZOO 412, Biology of Animals, OR

BIOL 411 and BIOL 412, Principles of Biology I and II

NR 504, Freshwater Resources

NR 501, Introduction to Soil Sciences

NR 602, Natural Resources and Environmental Policy

NR 658, Introduction to Geographic Information Systems

NR 718, Law of Natural Resources and Environment

NR 637, Practicum in Environmental Conservation (Internship)

NR 735, Land Conservation Principles and Practices, or NR 663, Applied Directed Research in New Zealand

EREC 411, Environmental and Resource Economics Perspectives, or ECON 402, Principles of Economics (Micro)

One introductory resource system course, as follows:

NR 415, Global Biological Change

NR 425, Field Dendrology

NR 433, Wildlife Ecology

NR 502, Forest Ecosystems and Environmental Change

One ecology elective:

BIOL 541, General Ecology

NR 527, Forest Ecology

NR 660, Ecology and Biogeography of New Zealand (only for UNH-EcoQuest NZ program students)

ZOO 503, Introduction to Marine Biology

One physical science (relevant to specialization):

CHEM 403, General Chemistry

ESCI 409, Environmental Geology

PHYS 401, Intro to Physics

One course in environmental ethics and values:

NR 701, Ecological Values and Ethics

NR 784, Sustainable Living

PHIL 755, Environmental Philosophy and Policy

HIST 618, American Environmental History

SOC 665, Environmental Sociology

One statistical skills course:

BIOL 528, PSYC 402, SOC 502 or equivalent

One communication skills course:

CMN 600, Public Speaking as a Civic Art

EDUC 710B, Micro-communications

THDA 520, Creative Drama (Children's Theater)

THDA 583, Introduction to Puppetry

THDA 622, Storytelling, Story Theater and Involvement Dramatics

THDA 624, Theater for Young Audiences

One writing skills course (beyond ENGL 401):

ENG 502, 503, 521, 621, or 623

Specialization (36 credits required)

Students select one from the following listed specialization areas to develop their expertise in an area of interest. Alternatively, a student may, in consultation with the student's adviser, design a specialization area.

A. Land and Water Resource Policy and Management; International Environmental and Natural Resource Policy and Sustainable Development

B. Environmental Education, Communication, Public Participation, and Leadership

For each area of specialization students are required to select one listed course from each of 5 specified categories:

Category 1: Ecology (a listed 600 or higher-level course)

Category 2: Economics (a listed 600 or higher-level course)

Category 3: Theory (from identified courses relevant to the specialization)

Category 4: Problem Solving Skills (from identified courses relevant to the specialization)

Category 5: Professional and/or Field Skills (from identified courses relevant to the specialization)

Students select four additional courses in their specialization to complete their 36 hour specialization. These four courses may be selected from any of the five categories. The majority of courses selected for the student's specialization should be at the 600 or 700 level. Special permission will be required to apply a 400 level course to fulfill a specialization requirement. Students must achieve a grade of C- or better for all courses they wish to be counted for their environmental conservation studies major. Students work closely with a faculty adviser to plan their program of study.

Students interested in the environmental conservation studies program may consult with program coordinator Robert Eckert, (603) 862-2508.

Environmental Conservation Studies Minor

A minor in environmental conservation studies (five courses totaling at least 20 credits) is available to students outside of the environmental conservation studies major.

Required Courses

1. *Any one of the following:* PBIO 412; ZOOL 412, BIOL 411, BIOL 412
2. NR 435, Contemporary Conservation Issues and Environmental Awareness, or NR 502, Forest Ecosystems and Environmental Change
3. One course in ecology: Possibilities include: NR 433, NR 425, NR 527, NR 660, BIOL 541
4. *One intermediate course in environmental policy, or ecological or resource economics:*
NR 724, Resolving Environmental Conflicts
NR 731, Ecosystem-Based Governance: Policies and Management Strategies
NR 662, Environmental Policy, Planning and Sustainability in New Zealand
NR 718, Law of Natural Resources and Environment
NR 720, International Environmental Politics and Policies for the 21st Century
ECON 607, Ecological Economics
EREC 606, 611, 627, or 676
5. *Choose one:*
NR 504, Freshwater Resources

NR 501, Introduction to Soil Sciences

NR 661, Restoration Ecology and Ecosystem Management in New Zealand

NR 785, Systems Thinking for Sustainable Living

Students interested in the environmental conservation studies minor should contact Mimi Larsen Becker, Department of Natural Resources and the Environment, (603) 862-3950.

[^ back to top](#)

Environmental Horticulture (DBS) ▼

» <http://www.envhorticulture.unh.edu/>

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Professor: J. Brent Loy

Associate Professor: John M. Roberts

Extension Professor: Alan T. Eaton, Catherine A. Neal

Extension Associate Professor: Rebecca Grube Sideman

For (PBIO) courses, see [Plant Biology](#). For course descriptions, go to www.undergradcat.unh.edu.)

This program offers a flexible curriculum for students interested in a multifaceted view of plant agriculture that also embraces issues of environmental stewardship, food safety, international development, and other topics of broad public concern. A degree in environmental horticulture will prepare students for careers managing greenhouses, nurseries, farms, and golf courses; in teaching; in consulting and applied research; in practicing journalism; in working for park and highway planning commissions; in working in sales or brokerage aspects of wholesale and retail marketing; and in finding employment in food- and feed-processing firms.

Requirements

Students are required to take the core courses, support courses, and 20 credits of approved elective courses.

Core Courses

Abbreviation	Course Number	Title	Credits
PBIO	412	Introductory Botany	4
PBIO	421	Introductory Horticulture	4
PBIO	501	Basic Biochemistry	3

or BCHM	658/659	General Biochemistry	5
PBIO	546	Plants, Soils, and Environment	4
or NR	501	Introduction to Soil Sciences	4
or HT	215	Soils and Land Use	2
and HT	217	Soils and Plant Nutrition	2
PBIO	547	Environmental Horticulture	4
PBIO	572	Plant Propagation	4
or HT	204	Plant Propagation	4
PBIO	566	Systematic Botany	4
PBIO	600	Field Experience (Horticulture Related)	4
PBIO	701	Plant Physiology	3
PBIO	702	Plant Physiology Lab	2
PBIO	612	Plant Genetics and Reproduction	4
or BIOL	604	Principles of Genetics	4
PBIO	651	Plant Pathology	4
PBIO	795W-02	Invest.: Insect Pest Management	4

Electives

A minimum of 20 credits (see department for list of electives applicable).

Students are offered some flexibility in selection of electives, although these electives should be related to horticulture and selected in consultation with an adviser.

Support Courses Required from Other Programs

Abbreviation	Course Number	Title	Credits
BIOL	528	Applied Biostatistics I	4
CHEM	403	General Chemistry I	4
CHEM	404	General Chemistry II	4
EREC	411	Environmental and Resource Economic Perspectives	4

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^ [back to top](#)

Environmental Sciences ▼

» <http://www.envsci.unh.edu/>

Professor: John D. Aber, John E. Carroll, Russell G. Congalton, William H. McDowell

Associate Professor: Mimi Larsen Becker, Serita D. Frey, George C. Hurtt, Thomas D. Lee, Scott V. Ollinger

The College of Life Science and Agriculture (COLSA) and the College of Engineering and Physical Sciences (CEPS) jointly offer a bachelor of science degree in environmental sciences. Environmental sciences is an interdisciplinary field concerned with the interaction of biological, chemical, and physical processes that shape our natural environment. Students graduating with a degree in environmental sciences will have an understanding of these interacting processes, the ability to effectively communicate with both scientific and lay audiences, competency in field methods appropriate for entry-level environmental science positions, competency in the use and application of Geographic Information Systems (GIS), a basic understanding of environmental policy, and the ability to contribute to multidisciplinary teams. The University of New Hampshire is a recognized leader in environmental sciences research, and the environmental sciences program capitalizes on faculty expertise in this area. The program has 12 full-time faculty members, with major teaching and research emphases in the areas of biogeochemical cycling, environmental chemistry, ecosystem science, global change, hydrology, plant ecology, soil science, and water resource management.

Employment opportunities include: environmental consulting firms; educational facilities (e.g., science centers); environmental monitoring laboratories (e.g., water treatment plants; the Environmental Protection Agency); government agencies (e.g., the U.S. Geological Survey, Bureau of Land Management, Natural Resource Conservation Service), university and government research laboratories, and nongovernment environmental organizations. The environmental sciences program also constitutes an excellent preparation for graduate programs in several areas relating to the environment. Students should consult with their adviser early if their goals include further study.

Requirements

In addition to general education requirements, all students will take Introduction to Environmental Science (NR 403) and Professional Perspectives in Natural Resources (NR 400), plus one other elective introductory environmental science course. Foundation courses include two semesters of chemistry (CHEM 403, 404) and calculus (MATH 425, 426), one semester of geology (ESCI 401, 402, or 409), one semester of statistics (MATH 644 or BIOL 528), one semester of physics (PHYS 407), and one approved biology course. Core courses

include Techniques in Environmental Sciences (ESCI 534); Introduction to GIS (NR 658), Fate and Transport in the Environment (ESCI 654); Natural Resource and Environmental Policy (NR 602); and a capstone course sequence (NR791 and 792).

Students must complete an additional eight courses in one of the following options:

Ecosystems

NR 527, Forest Ecology, or BIOL 541, General Ecology

NR 730, Terrestrial Ecosystems

NR 765, Community Ecology

NR 751, Aquatic Ecosystems

four approved electives

Hydrology

PHYS 408, General Physics II

ESCI 561, Landscape Evolution

NR 501, Introduction to Soil Sciences, or ESCI 512, Principles of Mineralogy

NR 604, Watershed Hydrology

ESCI 705, Principles of Hydrology

ESCI 710, Groundwater Hydrology

two approved electives

Soil and Watershed Management

PHYS 408, General Physics II

NR 501, Introduction to Soil Sciences

NR 604, Watershed Hydrology

NR 703, Watershed Water Quality Management

NR 706, Soil Ecology, or NR 744, Biogeochemistry

three approved electives

For a list of approved elective courses and for further information about the major, students may consult with the program coordinator, John D. Aber, (603) 862-3045.

[^ back to top](#)

Forestry ▼

» <http://www.forestry.unh.edu/>

Professor: Russell G. Congalton, Mark J. Ducey, Robert T. Eckert, Theodore E. Howard, Paul

C. Johnson, Barrett N. Rock

Associate Professor: Thomas D. Lee, Scott V. Ollinger

Extension Professor: Karen P. Bennett

Climate change, carbon storage, biodiversity, and ecosystem integrity in the context of sustainable human use of forests and associated resources are important scientific and social issues. The forestry program at the University of New Hampshire prepares its graduates with the scientific and managerial knowledge and skills to address these environmental and resource management problems at local, regional, and global levels.

Forestry is the art and science of managing and understanding the natural and human dimensions of forests and forest use. Forestry education at UNH focuses on sustainable management of forests for biodiversity, productivity, and health, based on a multidisciplinary approach. The program's goal is to provide a sound professional preparation, a broad general education, and the flexibility to cultivate special abilities and interests, leading to a bachelor of science in forestry degree (B.S.F.) accredited by the Society of American Foresters (SAF). The SAF is recognized by the Council on Postsecondary Accreditation and the U.S. Department of Education as the accrediting body for forestry in the United States. Students are encouraged to develop an area of concentration or to complete a minor in consultation with their academic adviser.

UNH forestry graduates manage forests to provide wildlife habitat and recreation opportunities, care for soil and water resources, protect and restore forest ecosystems, and assure a sustainable supply of forest products. They are employed by private industry, public agencies, public interest groups, education institutions, research organizations and consulting firms.

Many students enter graduate school for advanced study in forest biology or management while others have found challenging international opportunities.

Freshman Year

BIOL 528, Applied Biostatistics I, or equivalent

ENGL 401, First Year Writing

MATH 424B, Calculus for Life Sciences, or MATH 420, Finite Mathematics

NR 400, Professional Perspectives in Natural Resources

NR 401, Introduction to Natural Resources

NR 425, Field Dendrology

NR 433, Wildlife Ecology

NR 542, Forestland Measurement and Mapping

PBIO 412, Introductory Botany
General Education elective 4, 5, 6, or 8

Sophomore Year

CHEM 403, General Chemistry
EREC 411, Environmental and Resource Economics Perspectives, or ECON 402, Principles of Economics (Micro)
NR 501, Introduction to Soil Sciences
NR 504, Freshwater Resources
NR 506, Forest Entomology
NR 527, Forest Ecology
NR 599, Work Experience
Oral Communications Skills Course
General education elective 4, 5, 6, or 8

Junior Year

NR 602, Natural Resources and Environmental Policy
NR 643, Economics of Forestry
NR 658, Introduction to Geographic Information Systems
FORT 279, Forest Fire Control and Use
NR 729, Silviculture
NR 757, Photo Interpretation and Photogrammetry
NR 782, Monitoring Forest Health, or PBIO 651, Plant Pathology
General education elective 4, 5, 6, or 8

Senior Year

NR 745, Forest Management
NR 749, Forest Inventory and Modeling
RMP 711, Recreation Resource Management
General education elective 4, 5, 6, or 8

Students interested in the Forestry program may consult with the program coordinator, Theodore Howard, (603) 862-2700.

[^ back to top](#)

Genetics Program (GEN) ▼

» <http://www.genetics.unh.edu/>

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Professor: W. Kelley Thomas, Louis S. Tisa

Associate Professor: Estelle M. Hrabak

Assistant Professor: Vaughn S. Cooper

Research Assistant Professor: Kevin Culligan

There is no baccalaureate degree program in genetics (only master's and Ph.D. degrees).

However, undergraduates can complete a minor in genetics or can pursue their interests within the context of any of the following B.S. degree programs: biology, animal sciences, biochemistry, microbiology, plant biology, or zoology. Students interested in preparing for graduate work in genetics at UNH or elsewhere should contact the chairperson of the genetics program early in their undergraduate careers for advice on courses.

Requirements: Completion of 20 credits from the courses listed below, with a grade of C- or better, is required for a minor in genetics. At least two courses should be selected from each of the categories. Four (or more) credits of GEN 795, Investigation in Genetics, may be counted as one course toward fulfillment of the minor.

Category 1: ZOOL 665, Conservation Genetics

GEN 705, Population Genetics

GEN 715, Molecular Evolution

GEN 723, Quantitative Genetics

GEN 753, Cytogenetics

GEN 766, Environmental Genetics

GEN 772, Evolutionary Genetics of Plants

Category 2: BIOL 604, Principles of Genetics

GEN 706, Human Genetics

GEN 711, Genomics and Bioinformatics

GEN 754, Laboratory in Biochemistry and Molecular Biology of Nucleic Acids

GEN 771, Molecular Genetics

GEN 774/775, Plant Biotechnology and Genetic Engineering

GEN 782, Developmental Genetics

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^ [back to top](#)

International Affairs (dual major) ▼

For program description, see [Special University Programs](#).

[^ back to top](#)

Life Sciences and Agriculture (LSA) ▼

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Medical Laboratory Science (MLS) ▼

» <http://www.mls.unh.edu/>

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Clinical Assistant Professor: Barry Corriveau, Adele Marone, Elise R. Sullivan

Lecturer: Joyce R. Stone

The medical laboratory science (MLS) program provides students with a quality education in the fundamentals of biomedical laboratory science and laboratory skills in addition to a broad-based university general education. The curriculum enables students to determine the presence, extent, or absence of human disease and to provide the valuable data needed to evaluate the effectiveness of the treatment of human disease. The program also provides an excellent background for students intending to pursue careers in the medical field and upon completion of a clinical internship qualifies them to become certified medical technologists.

Baccalaureate degree holders in medical laboratory science are highly sought after by biotechnology companies and biomedical research facilities. Students who receive certification are highly sought after by hospitals and medical centers. Forensics, public health, education, and diagnostic product development, sales, and service are additional areas of employment for MLS graduates. Graduates of the program are also uniquely qualified to continue their post-baccalaureate education in a wide variety of professional programs including physician assistant programs, pathologists' assistant programs, and medical school. They are prepared for advanced studies in many other fields including biochemistry, microbiology, genetics, molecular biology, health management and policy, and business administration

Students may pursue a B.S. degree in MLS by following a clinical, research, histology, or pre-professional track. Students obtain detailed curricula information in the Introduction to Medical Laboratory Science course (MLS 401) and in consultation with their academic advisers.

MLS Clinical Track

MLS majors following the clinical track will complete MLS required courses and a 24 –26 week clinical internship. Clinical internship positions are not guaranteed and are filled on established criteria published in the MLS Student Handbook, including professionalism, academic performance, interviews, references, and faculty recommendations.

Clinical students may become certified in all areas of the laboratory by completing courses in Advanced Clinical Microbiology (MLS 751), Advanced Hematology (MLS 752), Advanced Immunohematology (MLS 753), and Advanced Clinical Chemistry (MLS 754) during their internship. Upon successful completion of the clinical internship these students are awarded the B.S. degree and are eligible to take a national certification exam offered by the American Society of Clinical Pathologists (ASCP) or the National Certification Agency (NCA). Clinical students may choose to become certified in only one area of the clinical laboratory by completing either a Clinical Microbiology Internship (MLS 761), a Clinical Hematology Internship (MLS 762) a Clinical Immunohematology Internship (MLS 763), or a Clinical Chemistry Internship (MLS 764). Upon successful completion of the clinical internship these students are awarded the B.S. degree and are eligible to take a national certification exam offered by the ASCP or NCA in their categorical specialty area.

MLS Clinical Track—Academic Requirements and Essential Functions

Students applying for a clinical internship must have obtained a grade of C or better and a 2.5 grade-point average (GPA) in all MLS designated courses. These student must also have achieved a minimum 2.5 cumulative GPA at the time of application for their clinical internship in April of their junior year. They must maintain that minimum until the internship begins. A personal interview at the clinical affiliate to evaluate a student's understanding of the profession, communication skills, maturity, self-confidence, and supervisory potential is required. Students must demonstrate these attributes to participate in the clinical courses.

The medical laboratory science clinical curriculum is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). NAACLS requires students in this program to have the following essential functions: a sound intellect; good motor skills; eye-hand coordination and dexterity; effective communication skills; visual acuity to perform microscopic analyses, or read procedures, graphs, etc.; professional skills such as the ability to work independently, manage time efficiently, and comprehend, analyze and synthesize various materials, as well as have sound psychological health and stability. Additional information regarding the essential functions listed above may be obtained by contacting the MLS program director.

MLS Histology Track

MLS majors following the histology track will complete MLS required courses and additional histology courses where students learn to prepare, process and stain tissue from surgery and autopsies for microscopic analysis. Histotechnology professionals perform, develop, evaluate, correlate and assure accuracy and validity of laboratory testing and procedures; direct and supervise anatomic pathology laboratory resources and operations; and, collaborate in the diagnosis and treatment of patients. Upon successful completion of the MLS histology track students are awarded the B.S. degree. Students also have an opportunity to participate in an 18-week histology internship experience, and with an additional 34 weeks of work under a board-certified pathologist, they are eligible to take a national certification exam. Histologists have unlimited choice of practice settings. Hospitals, for-profit laboratories, public health facilities, and industry currently have positions for qualified histologists. Other opportunities are in industrial research, veterinary pathology, marine biology, and forensic pathology. Histology graduates also have the necessary educational experiences to pursue studies in a variety of graduate and professional programs such as pathologists' assistant programs.

MLS Research Track

MLS students following the research track will complete MLS required courses and additional courses that emphasize the theories and techniques required for the analysis of blood, cells, and tissues, and utilized in biomedical research. Upon successful completion of the MLS research curriculum students are awarded the B.S. degree. Graduates are well prepared for technically oriented jobs where their analytical, scientific, and technical skills are valuable and desired assets. They may be employed in industrial, research, or public health laboratories, as well as in forensic or pharmaceutical laboratories. Graduates are also well prepared for graduate studies in microbiology, biochemistry, genetics, molecular biology, and other science and non-science disciplines.

MLS Pre-professional Track

MLS majors following a pre-professional track will complete MLS required courses and additional courses required for admission to professional programs such as physician assistant programs, pathologists' assistant programs, or medical schools. Upon successful completion of the MLS pre-professional curriculum, students are awarded the B.S. degree. Since 70–80 percent of what medical professionals do is diagnose based on laboratory testing results, medical laboratory science program graduates are well prepared for continuing their medical education in professional programs.

MLS Minor

Students may obtain a minor in MLS by successfully completing three MLS-designated courses and additional approved courses for a minimum of 20 credits. Students interested in the MLS minor should consult the MLS program director.

Required Core Courses

ZOOL 507 and 508, Anatomy and Physiology
MLS 755, Molecular Diagnostics
BIOL 604, Principles of Genetics
CHEM 403 and 404, General Chemistry
CHEM 545/546, Organic Chemistry (pre-med students substitute CHEM 651/3 and 652/4 for CHEM 545/546)
MLS 640, Phlebotomy Theory
MLS 642/643, Basic Immunology/Serology Lab
MLS 644/645, Hematology/Clinical Hematology Lab
MLS 660/661, Body Fluids/Body Fluids Lab
BCHM 658/659, General Biochemistry
MICR 503, General Microbiology
MICR 602, Pathogenic Microbiology
BIOL 528, Applied Biostatistics, or other Statistics course (PSYC 402 or SOC 502)
MLS 720/721, Mycology, Parasitology, and Virology/MPV Lab
MLS 610, Biomedical Laboratory Management

Additional required course for Clinical Track

MLS 641, Phlebotomy Clinical Internship

Additional required course for Clinical, Research and Pre-professional Tracks

MLS 658/659, Medical Biochemistry/Clinical Chemistry Lab

Additional required courses for Clinical and Pre-professional Tracks (except Pre-pathologists' Assistant)

MLS 656/657, Immunohematology and Transfusion Science/Blood Banking Lab
MLS 750, Seminar

Additional required courses for Histology Track and Pre-pathologists' Assistant

ANSC 707/807, Routine Histological Techniques
ANSC 709/809, Special Histological Techniques
ANSC 623, Comparative Histology

Additional required courses for Pre-professional Tracks

BIOL 411, General Biology
BIOL 412, (Pre-med)
ANSC 704, Principles of Pathobiology
Additional English course
Algebra (Pre-physician assistants or pathologists' assistant only)
Calculus (Pre-med only)

Additional Psychology or Sociology course (Pre-physician assistants only)

Physics 401/402 (Pre-med only)

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^ [back to top](#)

Microbiology (MICR) ▼

» <http://microbiology.unh.edu/>

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Professor: Aaron B. Margolin, Thomas G. Pistole, Frank G. Rodgers, Louis S. Tisa

Research Professor: Michael P. Lesser

Assistant Professor: Vaughn S. Cooper, Cheryl A. Whistler

Clinical Assistant Professor: Elise R. Sullivan

Microbiology explores the world of organisms too small to be seen with the unaided eye. The primary emphasis of the Microbiology program is on prokaryotes (bacteria and archaea) and viruses. The curriculum provides basic familiarity with microorganisms, their interactions with other life forms (including humans), and their roles in natural systems and processes.

Baccalaureate degree holders in microbiology secure positions in industry (food and beverage, pharmaceutical, bioproducts, etc.); in city, state, and federal agencies (public health, environmental quality, regulatory, etc.); or in universities or research institutes.

The microbiology major offers programs of study leading to the bachelor of science degree. Microbiology is widely recognized as being both a basic life science and a highly pragmatic applied science. The curriculum within the microbiology program is intended to accommodate the diverse needs of potential students. It provides solid training for individuals intending to enter the workforce or to pursue graduate education in the biological sciences, biomedicine, or biotechnology. It also provides for entry into professional programs such as dentistry, human medicine, or, with some little additional preparation, veterinary medicine. The curriculum is appropriate for students planning to enter the workforce immediately upon graduation as research technicians, applied scientists, or in sales or marketing positions in the life sciences or biotechnological industry. The curriculum is also appropriate for transfer students and those planning to pursue a degree in business, including the M.B.A., for careers in managing diagnostic laboratories or in hospital administration.

Individuals considering a major in microbiology are strongly encouraged to enroll in MICR 503 and organic chemistry in their sophomore year. Requirements of the biology core curriculum may be deferred until the subsequent year, if necessary. Other microbiology-related courses

offered in the following programs may be taken with an adviser's permission: animal sciences, biochemistry and molecular biology, plant biology, civil engineering, zoology, or medical laboratory science. Courses in these areas are reviewed periodically by the microbiology faculty to ascertain their suitability for microbiology majors.

Special Problems in Microbiology (MICR 795) is available by permission and allows students the opportunity to conduct semi-independent research projects in conjunction with departmental faculty. Up to 4 credits of Problems in Microbiology may be applied to major requirements, although students may enroll for additional hours. Students must receive a minimum grade of C in major requirements (e.g., microbiology). A passing grade in major requirements taught outside the College of Life Sciences and Agriculture (e.g., chemistry, math, or physics) is acceptable.

Microbiology-related courses offered in the following programs may be taken with an adviser's permission: animal sciences, biochemistry and molecular biology, plant biology, civil engineering, zoology, or medical laboratory science. Courses in these areas are reviewed periodically by the microbiology faculty to ascertain their suitability for microbiology majors.

Students planning to attend graduate or postgraduate professional school or apply for certification as registered microbiologists through the American Society for Microbiology are strongly advised to take a course in quantitative analysis (CHEM 517-518).

Individuals considering a major in microbiology are strongly encouraged to enroll in MICR 503 and organic chemistry in their sophomore year. Requirements in the biology core curriculum may be deferred until the subsequent year, if necessary.

Students may obtain a minor in microbiology by successfully completing MICR 503 and four additional departmental courses in microbiology totaling a minimum of 20 credits at the 600 or 700 level. BCHM 658/659 may be substituted for one of these courses. Students must receive a minimum grade of C in major requirements taught in the College of Life Sciences and Agriculture (e.g., microbiology, biology, or biochemistry). BCHM 658/659 may be substituted for one of these courses. A maximum of 4 credits of Problems in Microbiology may be applied to the minor.

Microbiology Curriculum

The microbiology Bachelor of Science degree is satisfied by students taking seven microbiology courses totaling a minimum of 28 credit hours with a grade of C or above.

Students are required to take the microbiology core (five classes) and a minimum of two microbiology electives. Additionally, students must also satisfy the general biology core requirements, (see page _____).

Microbiology Core

MICR 503, General Microbiology

MICR 602, Pathogenic Microbiology

MICR 704, Genetics of Prokaryotic Microbes

MICR 717, Microbial Physiology

A microbial ecology course (this requirement may be fulfilled by taking either MICR 707, MICR 713, or NR 706

Electives

MICR 711, Genomics and Bioinformatics

MICR 718, Ethics and Issues in Microbiology

MICR 751, Cell Culture

MICR 702, Infectious Disease and Health

MICR 706, Virology (and 708, Laboratory)

MICR 714, Public Health and Waterborne Diseases

MICR 705, Immunology

MICR 707, Marine Microbiology

MICR 713, Microbial Ecology & Evolution

NR 706, Soil Ecology

MICR 600, Field Experience

MICR 603, Bacteriology of Food (UNHM)

MLS 720/721, Mycology, Parasitology, and Virology

MICR 795, Problems in Microbiology

Biology Core

BIOL 411-412, Principles of Biology I and II

CHEM 403-404, General Chemistry

CHEM 651/653 Organic Chemistry, or

CHEM 545/546 and BCHM 658/659, General Biochemistry, or

BCHM 751-752, Principles of BCHM with BCHM 755 (lab)

PHYS 401-402, Introduction to Physics I and II

MATH, 424B, Calculus for Life Sciences, or MATH 425

BIOL 528, or equivalent (statistics)

BIOL 604, Principles of Genetics

1. MICR 795 can be taken for three or four credits over one or two semesters. Maximum of four credits can be applied as one of Microbiology required courses for the major or minor (although students may enroll for additional hours), and it must be a lab experience. Faculty permission is required.

2. MICR 600 Field Experience (must be three or four credits for meeting major requirements;

maximum of four credits toward major). The following criteria must be met:

student develops proposal;

proposal is signed by supervisor sponsoring faculty;

student is encouraged to present at conference;

final report is accepted by sponsoring faculty;

student cannot be paid by a company.

3. For students transferring into the microbiology major, the equivalent of two semesters of a laboratory biological science may be accepted with microbiology faculty approval.

4. Premedical and other pre-health students should take one year of organic chemistry.

» [Click to view course offerings](#)

^ [back to top](#)

Natural Resources (NR) ▼

» <http://www.nre.unh.edu/>

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Professor: Kimberly J. Babbitt, John M. Halstead, Barrett N. Rock, Andrew A. Rosenberg, Jon M. Wraith

Affiliate Professor: Changsheng Li

Associate Professor: Jonathan R. Pennock

Research Associate Professor: David M. Burdick, Stephen H. Jones

Research Assistant Professor: Adrienne I. Kovach, Michael W. Palace

Extension Professor: Julia M. Peterson

Nutritional Sciences (NUTR) ▼

» <http://www.nutrition.unh.edu/>

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Professor: Gale B. Carey, Joanne Curran-Celentano, Anthony R. Tagliaferro

Associate Professor: Dennis J. Bobilya, Colette H. Janson-Sand

Clinical Associate Professor: Mary Katherine Lockwood, Ruth A. Reilly

Clinical Assistant Professor: Joanne D. Burke

Lecturer: Jesse Stabile Morrell

Extension Professor: Deborah Luppold

The science of nutrition is the study of nutrients in food and the body's handling of these nutrients. As an applied science, nutrition is based on biochemistry and physiology but can also include anthropology, economics, genetics, microbiology, pathology, and zoology.

Consequently, the nutritionist often cooperates with workers in many different fields. The nutrition program at UNH is designed to permit specialized study in human and/or animal nutrition.

Three curricula are offered to meet the educational needs of students with differing professional aspirations.

Basic Science Curriculum

This curriculum provides students with a solid science background in biology, chemistry, physiology, nutrition, biochemistry, and physics. Upon graduation, students are well prepared for technically oriented jobs in science. This curriculum is also excellent preparation for students planning further education in graduate school or professional schools of medicine and dentistry. Students in this curriculum are required to complete the biology core curriculum and NUTR 400 and 750; ANSC 511/512 or ZOO 507/508; MICR 503; BCHM 658/659; and 12 additional credits from recommended courses in nutrition.

Dietetics Curriculum

Approved by the American Dietetics Association (ADA), the dietetics curriculum prepares students to apply for a postgraduate dietetic internship. Completing this internship and passing the ADA examination are essential for becoming a registered dietitian (RD), and requisite for employment opportunities in clinical dietetics and community nutrition. Required courses for this curriculum are NUTR 400, 401, 476, 504, 510, 550, 650, 720, 750, 773, 775, and 780; ZOO 507/508; CHEM 403/404, and 545/546; ENGL 401; HMG 403; MICR 501 or 503; BCHM 658/659; SOC 400 or PSYC 401; HMP 401; HMP 710; and either PSYC 402, SOC 502, BIOL 528, or HHS 540.

Wellness Curriculum

The Wellness Track will provide students with a nutrition and wellness background that will prepare them for future employment opportunities in agencies and businesses that have an emphasis on health and wellness, such as the workplace, schools, fitness centers, non-profit organizations and the community. Upon graduation, students would be prepared for future study or certification in the health education field. Required courses for this curriculum are

NUTR 400, 401, 476, 506, 510, 546, 650,700, 720, and 756; ZOOL 507/508; CHEM 403/404; ENGL 401; HMP 401 and 501; HMGY 403; KIN 527, 527, 620 and 648; MICR 501; OT 513; SOC 400 or PSYC 401; PSYC 402 or SOC 502.

» [Click to view course offerings](#)

^ [back to top](#)

Plant Biology (PBIO) ▼

» <http://www.plant.unh.edu/>

» [Click to view course offerings](#)

Professor: Thomas M. Davis, Wayne R. Fagerberg, Curtis V. Givan, Leland S. Jahnke, J. Brent Loy, Arthur C. Mathieson, Subhash C. Minocha, Christopher D. Neefus

Associate Professor: Alan L. Baker, Estelle M. Hrabak, Anita S. Klein, James E. Pollard, John M. Roberts

Research Assistant Professor: Dennis E. Mathews

Affiliate Assistant Professor: Jianhua Li

Extension Professor: Alan T. Eaton, Catherine A. Neal, Cheryl A. Smith, Stanley R. Swier

Extension Associate Faculty: Rebecca Grube Sideman

Extension Assistant Professor: Brian A. Krug

Plant biology is the study of plants at the population, organismal, cellular, and molecular level; and the investigation of the uses of plants for food, fiber, recreational, and ornamental purposes. Offerings in marine and freshwater plant biology also are provided and facilitated by the Jackson Estuarine Laboratory and two marine laboratories where the plant biology faculty maintains an active involvement in teaching and research.

General Science Certification

See [Department of Education](#) and [COLSA](#).

B.S. in Plant Biology

This degree is for students intending to seek employment in agricultural, pharmaceutical, and biotechnology industries; to work in governmental agencies, environmental groups, and consulting firms; to teach secondary education; or to undertake graduate studies in preparation for advanced research and teaching positions. Students interested in university teaching and/or research, and governmental and industrial research, should plan to complete an advanced degree in the field.

Students are required to take the core courses, which include the biology core curriculum and five plant biology elective courses.

Core Courses

Abbreviation	Course Number	Title	Credits
BIOL	411	Principles of Biology I	4
BIOL	412	Principles of Biology II	4
CHEM	403	General Chemistry I	4
CHEM	404	General Chemistry II	4
MATH	424B	Calculus for Life Sciences	4
MICR	503	General Microbiology	5
BIOL	541	General Ecology	4
BIOL	528	Applied Biostatistics I	4
CHEM	545/546	Organic Chemistry and Laboratory	5
BCHM	658/659	General Biochemistry and Laboratory	5
PHYS	401	Introduction to Physics I	4
PHYS	402	Introduction to Physics II	4
BIOL	604	Principles of Genetics	4
PBIO	701/702	Plant Physiology and Laboratory	5
PBIO	758	Plant Anatomy	5
PBIO	774	Plant Biotechnology and Genetic Engineering	3
PBIO	566	Systematic Botany	

Plant Biology Electives

Five additional courses must be selected from those listed under categories 1-5. No more than three courses from any one category can be used to fulfill the requirement. It is strongly recommended that students choose courses from as many of the categories as possible to obtain a broad background in plant biology. Core courses cannot be used to fulfill elective requirements. PBIO 795, Investigations in Plant Biology can be used once to fulfill one of the five electives, if taken for three or more credits. PBIO 796, Special Topics in Plant Biology can be used to fulfill elective requirements, if taken for three or more credits and pre-approved by adviser.

Category 1: Systematics, Ecology, and Evolution

PBIO 566, 625, 717, 719, 721, 722, 723, 747, 761; ZOOL 545; NR 713, 730, 765, 783

Category 2: Marine and Freshwater Plant Biology

PBIO 503, 625, 717, 719, 721, 722, 723, 725, 727, 732, 747

Category 3: Plant Structure and Physiology

PBIO 709, 713, 714/715, 727, 774/775

Category 4: Environmental Horticulture

NR 506; PBIO 546, 547, 565, 572, 650, 651, 652, 678, 679; ZOOL 745

Category 5: Plant Genetics, Cell Biology, and Biotechnology

BCHM 771; GEN 705; PBIO 751, 753, 754, 772, 775

B.A. in Plant Biology

The curriculum provides a broad background in the liberal arts and plant biology. Students may enter this program as first-year students or transfer into it from other liberal arts or science programs. This program is of particular interest to students who intend to utilize their plant biology training in public relations, teaching, or other related careers in combination with a liberal arts background. The program allows students to obtain minors in other fields such as English, history and philosophy of science, international affairs, education, art, etc., to create an interdisciplinary program, or to pursue a double major. Students must complete a minimum of 40 semester credits in the major, including B.A. degree core courses, upper level biology category electives, required general education requirements, and other B.A. requirements.

Upper Level Plant Biology Category Electives

12 credits minimum

Select courses from several of the five plant biology categories (see B.S. program). PBIO 758 and 774 are also recommended.

Required General Education Courses

Required: Group 3, CHEM 403-404, General Chemistry

Recommended: Group 2, BIOL 528, Applied Biostatistics I

Group 8, PHIL 424, Science, Technology, & Society; or HUMA 651, Humanities and Science: The Nature of Scientific Creativity

Other B.A. Requirements

Foreign language (equivalent to one year of college language)

Requirements

Abbreviation	Course Number	Title	Credits
PBIO	412	Introductory Botany*	4
ZOOL	412	Biology of Animals	4
PBIO	501	Basic Biochemistry	3
or CHEM	545/546	Organic Chemistry and Laboratory	5
BIOL	541	General Ecology	4
PBIO	566	Systematic Botany	4
or PBIO	721	Microscopic Algae	4
or PBIO	722	Marine Phycology	4
BIOL	604	Principles of Genetics	4
or PBIO	612	Plant Genetics and Reproduction	4
PBIO	701/702	Plant Physiology and Laboratory	5

**waived if previous credit received for BIOL 411-412 or equivalent*

Minors

The Department of Plant Biology offers two departmental minors: a minor in plant biology and a minor in environmental horticulture. These minors are available to all students and are designed to provide a flexible and broad selection of courses to complement any other major area of study.

The requirements for the plant biology minor are:

PBIO 412 or equivalent or BIOL 601, and a minimum of 16 credits from the following list of courses: PBIO 566, 625, 651, 668, 701/702, 709, 713, 714/715, 717, 719, 721, 722, 727, 751, 753, 754, 758, 761, 772, 774/775, 795 (maximum of four credits), 796, 799; BIOL 601

The requirements for the environmental horticulture minor are:

PBIO 421 and a minimum of 16 credits from the following list of courses: PBIO 405, 547, 565, 566, 572, 612, 650, 651, 652, 678, 679, 689, 701/702, 795, 796; BIOL 601

For advice on course selection, students should see the department chairperson.

Departmental Honors

Honors in plant biology or environmental horticulture will be awarded to students who complete 16 credits of honors courses in plant biology courses (including a minimum of four credits in a senior honors thesis project), and maintain a minimum grade-point average of 3.2 (overall average and in major coursework). Students wishing to apply to the departmental honors program should consult with the department chairperson.

» [Click to view course offerings](#)

^ [back to top](#)

Tourism Planning and Development (TOUR) ▼

» <http://www.tourism.unh.edu/>

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Professor: Lyndon E. Goodridge, Bruce E. Lindsay

Associate Professor: Kelly L. Cullen, Alberto B. Manalo, Douglas E. Morris

Extension Professor: Michael R. Sciabarrasi

Extension Associate Professor: Charles A. French

Tourism creates immense economic activity, totaling more than \$4 trillion dollars of world spending. Tourism is also an integral part of New England's economy. Experience has shown that the public and private sectors of the tourism industry benefit substantially from proper planning. Those locations with the best planned and managed tourism developments are likely to be the most successful tourist destinations from the standpoint of providing both high-quality tourist experiences and bringing substantial economic benefits with minimal disruptions to the social and natural environment. In response to these needs, the Department of Natural Resources and the Environment offers a bachelor of science degree in tourism planning and development from regional and international perspectives.

The tourism planning and development curriculum provides students with the skills and knowledge necessary to plan, develop, and manage natural, cultural, and financial resources in an environmentally responsible manner. The program utilizes an interdisciplinary approach to provide students with a strong liberal education supplemented by a broad professional understanding of tourism planning and its role in local, state, national, global economic, and social development. Students study both the social and environmental sciences in order to better understand the complexity of natural and social systems. The program emphasizes the practical application of planning and economic theory to the planning for the development of tourism resources.

Curriculum Structure

All majors must complete a core curriculum and choose one of two concentrations: international development or regional tourism planning.

Core Courses

The core curriculum is composed of the following courses:

TOUR 400, Introduction to Tourism

EREC 411, Environmental and Resource Economics Perspectives

EREC 501, Agriculture and Natural Resource Product Marketing

EREC 525, Statistical Methods and Applications

CD 614, Fundamentals of Planning

TOUR 615, Tourism Planning and Development

TOUR 633, Economics of Travel and Tourism

TOUR 560, Special Topics (8 credits)

TOUR 700, Marketing Communications Research: Methodological Foundations

TOUR 705, Ecotourism: Managing for the Environment, or TOUR 767, Social Impact Assessment, or CD 777, Topics in Community Planning

TOUR 794, Tourism Internship

TOUR 794 involves a 14–16 week, full-time, supervised (40 hrs.) internship, and enables students to meet and work in association with representatives from the public and private sectors of the tourism industry.

International Tourism Development Concentration

This concentration area prepares students to work in the dynamic and challenging environment of international tourism development. Depending on interests, language skills, and international experiences, students may expect to find employment in settings such as national tourism offices, international tourism organizations, national and foreign consults, and multinational tourism destination resorts. In addition to the required core courses, students who pursue the international tourism development concentration must complete the following requirements:

TOUR 792, International Experience; two TOUR electives; competency in a foreign language (i.e., functional reading, writing, and speaking ability equivalent to the third-year second-semester level); and two additional electives that will enhance students' career opportunities in the international area.

Regional Tourism Planning Concentration

This concentration area prepares students to obtain professional roles in planning in the public or private sectors of the tourism industry. Depending on interests and technical skills, students may expect to find employment in settings such as local and regional economic development organizations, chamber of commerce offices, convention and visitor bureaus, state and federal

offices of tourism development, local and regional planning commissions, and resort communities. In addition to the required core courses, students who pursue the regional tourism planning concentration must complete the following requirements: TOUR 798, Independent Study in Tourism; two TOUR electives; and all the requirements for a minor in community planning.

» [Click to view course offerings](#)

^ [back to top](#)

Wildlife Ecology ▼

» <http://www.wildlife.unh.edu/>

Professor: Kimberly J. Babbitt, John A. Litvaitis, Peter J. Pekins

The wildlife curriculum is for students interested in the ecology, conservation, and management of wild animals. It is designed to provide a knowledge of wildlife species and their various forest, field, and wetland habitats. Students are prepared for employment with public and private agencies in wildlife conservation and management, or for continued study at the graduate level.

Fieldwork is carried out during the academic year on local and regional wildlife populations. Majors are assisted and encouraged to obtain summer employment related to wildlife and natural resources.

Freshman Year

BIOL 411, Principles of Biology I

BIOL 412, Principles of Biology II

ENGL 401, First Year Writing

MATH 424B, Calculus for Life Sciences, or MATH 420, Finite Mathematics

NR 400, Professional Perspectives in Natural Resources

NR 401, Introduction to Natural Resources

NR 425, Field Dendrology

NR 433, Wildlife Ecology

Elective, physical science or general education elective

Sophomore Year

BIOL 528, Applied Biostatistics I

CHEM 403, General Chemistry

CHEM 404, General Chemistry

ENGL 501, Introduction to Creative Nonfiction, or ENGL 502, Technical Writing, or ENGL 503, Persuasive Writing

EREC 411, Environmental and Resource Economics Perspectives

NR 527, Forest Ecology, or BIOL 541, General Ecology

NR 655, Vertebrate Biology

NR 658, Introduction to Geographic Information Systems

ZOOL 542, Ornithology, or ZOOL 712, Mammalogy, or elective

Junior Year

NR 602, Natural Resources and Environmental Policy

NR 615, Wildlife Habitats

NR 737, Wildlife Population Dynamics

ZOOL 625, Principles of Animal Physiology

ZOOL 690, Evolution, or ZOOL 665, Conservation Genetics

ZOOL 710, Ichthyology, or ZOOL 713, Animal Behavior, or ZOOL 733, Behavioral Ecology

Elective

Senior Year

NR 729, Silviculture or equivalent

NR 636, Wildlife Techniques

NR 738, Wildlife Policy and Management

Elective

Elective

Elective

Electives should be used to satisfy remaining general education requirements and the wildlife major requirements in the areas of communication skills and physical sciences (one course in each area-pertinent courses are listed in the detailed wildlife curricular guidelines available from the department).

Students interested in the wildlife ecology major may consult with the program coordinator, Peter Pekins, (603) 862-1017.

General Science Certification

See [Department of Education](#) and [COLSA/Degrees](#).

[^ back to top](#)

Zoology (ZOOL) ▼

» <http://www.zoology.unh.edu/>

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Professor: John F. Burger, Donald S. Chandler, James F. Haney, Larry G. Harris, W. Huntting Howell, Marianne Klauser Litvaitis, Michelle P. Scott, James T. Taylor, Winsor H. Watson III

Research Professor: Raymond E. Grizzle

Associate Professor: David L. Berlinsky, Jessica A. Bolker

Research Associate Professor: Maryellen M. Lutcavage

Affiliate Associate Professor: Richard Langan

Research Assistant Professor: Elizabeth A. Fairchild

Extension Assistant Professor: Kenneth J. La Valley

The Department of Biological Sciences has a primary responsibility for undergraduate and graduate instruction in fundamental aspects of animal biology, including the principles of form, function, development, and diversity produced by animal evolution. The teaching program provides a broad coverage of basic biological processes in invertebrate and vertebrate animals at the cellular, organismic, population, and community levels. Students receive background for a variety of professional positions in the public and private sector, and for graduate programs in the biological sciences including health-related fields. The department offers the bachelor of arts, bachelor of science, master of science, and doctor of philosophy degrees. Biological sciences faculty contribute significantly to the biology core curriculum, marine biology minor, animal behavior minor, genetics program, University Honors Program, ocean projects, undergraduate research opportunity programs, and courses at the Shoals Marine Laboratory.

There is a strong teaching and research emphasis on ecological and physiological processes in aquatic animals or ecosystems. This focus is enhanced by the geographical location of the University and the availability of facilities for aquatic research. The University's location and facilities provide unique opportunities for the study of aquatic and terrestrial animals due to its access to the Seacoast and the lakes region of New Hampshire, the White Mountain National Forest, and the presence of two coastal marine laboratories, as well as estuarine and freshwater laboratories.

The zoology major builds from the common background of the biology core curriculum, with ample time for third- and fourth-year students to concentrate in specialized disciplines such as marine and freshwater biology, behavior, cell and developmental biology, ecology, evolution, fisheries, physiology, and neurobiology. Zoology majors must complete 32 credits from courses in the biological sciences approved by the department with a 2.0 average. Students must

receive a minimum grade of C- in major requirements taught in the College of Life Sciences and Agriculture (e.g., zoology, microbiology, biology, biochemistry). A passing grade in major requirements taught outside the College of Life Sciences and Agriculture (e.g., chemistry, mathematics, physics) is acceptable. Minimum requirements for the B.S. in zoology are as follows: completion of the biology core courses and required courses in animal morphology, physiology and development, plus advanced electives in zoology and other biological sciences. The B.A. in zoology has a foreign language requirement in lieu of one advanced elective. B.A. students also have somewhat more flexibility when choosing courses from the biology core.

New England Regional Student Program

The bachelor's degree in Zoology is one of the specialized curricula recognized by the New England Board of Higher Education and participates in the New England Regional Student Program. Under this program, students from the state of Massachusetts receive some preferential admission consideration and if admitted, pay the UNH in-state tuition rate plus 75 percent. Students who are interested in a zoology major should consult the department's undergraduate adviser or chair.

General Science Certification

See [Department of Education](#) and [COLSA/Degrees](#).

» [Click to view course offerings](#)

^ [back to top](#)

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Thompson School of Applied Science

[Introduction](#)
[Degrees](#)
[Other Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

Thompson School of Applied Science ▼

» <http://www.thompsonschoo.unh.edu/>

Director: Regina A. Smick-Attisano

Assistant Director: Cynthia Giguère

Introduction ▼

The Thompson School of Applied Science, established in 1895, is a division of the College of Life Sciences and Agriculture offering the associate in applied science degree and 14 program specializations. Curricula comprise a balance of professional, science-related, and general education applied courses that prepare students to meet the specific demands of a technical or applied profession, continuing education, and the general demands of life.

Faculty members at the Thompson School have significant work experience in industry and business; extensive and up-to-date knowledge of their specialties; ongoing contacts with practicing professionals; dedication to students and to excellence in teaching; and a commitment to practical, science-based education. They work closely with students, providing academic advising, career counseling, and special assistance, even outside the classroom, when needed.

Located at the western entrance to campus, the Thompson School's classrooms, laboratories, and working enterprises are designed for career-related experience under realistic conditions.

Barton Hall contains an animal science lab, a food preparation lab, a state-of-the-art grooming facility, several classrooms, faculty offices, and a student lounge.

Cole Hall includes a 150-seat lecture auditorium, a commercial kitchen and dining area, a student study and lounge area, a computer laboratory, a small classroom, and administrative offices.

Putnam Hall houses an architecture lab, a surveying and mapping lab, a Geographic Information System (GIS) lab, a computer-aided design (CAD) laboratory, an agricultural mechanization shop (welding, engines), forestry and multi-use classrooms, and faculty offices.

More detailed information on our various programs follows.

- Whether the specialty is dairy, equine, or small animals, students in **Applied Animal Science** utilize professional facilities both on and off campus. On-campus facilities include the Thomas P. Fairchild Dairy Teaching and Research Center, UNH's equine facilities, and the Thompson School Grooming Shop. Our small animal care program partners with the New Hampshire SPCA.
- **Applied Business Management** students enjoy the combination of academic and industry-based education and training in all aspects of managing and/or owning small- to medium-sized businesses and organizations. The N.H. Seacoast Area business community serves as our working laboratory for students, who observe operations, conduct interviews, and perform a wide variety of business analyses with local merchants, entrepreneurs, and other community leaders.
- **Civil Technology** students have a variety of classroom experiences, ranging from an in-lab materials testing facility to two Civil Technology computer facilities with 24-hour, 7-day access that features the latest software for surveying and mapping, and architectural and computer-aided design. GPS (Global Positioning System) software also is available. The Civil Technology suite of spaces provides a ready access to learning and development.
- Students majoring in **Community Leadership** gain enriching experiences working with organizations such as Families First, the N.H. Housing Partnership, the Red Cross, New Hampshire Public Television, and on-campus groups. Students are involved with creating, operating, and evaluating these service-learning activities.
- **Culinary Arts** students are engaged in a carefully designed curriculum combining theory with more than 700 hours of practical application of culinary techniques in state-of-the-art production kitchens located on UNH's campus. Students also are required to complete a summer work experience of a minimum of 400 hours at a pre-approved establishment between their first and second years of study.
- **Dietetic Technician** students complete course work in food and nutrition sciences and general education. Students apply that they learn outside the classroom, making a positive impact on the lives of others through 450 hours of supervised practice, which includes activities such as working as part of a health care team to provide nutrition services to hospitalized patients, providing nutrition activities to preschool children at Headstart, or teaching food insecure individuals in Operation Frontline classes how to eat well on a limited budget.
- **Forest Technology** students integrate all aspects of forest management as they complete projects on more than 3,000 acres of University land. Using the school's sawmill and harvesting equipment, they contribute to the sustainable management of UNH lands. In the classroom and the forest they develop skills and techniques in boundary surveying, mapping, forest inventory, forest planning, reforestation, and forest

land protection.

- **Horticultural Technology** students have the use of the Thompson School horticultural facility, with glass and poly covered greenhouses, propagating facilities, refrigerated compartments, display gardens, and the campus arboretum.
- **Restaurant Management** students receive a balance of management theory and practical experience. Operation of on-campus restaurants, special events, and functions offer students hands-on opportunities to gain confidence and experience. Students also are required to complete a summer work experience of a minimum of 400 hours at a pre-approved establishment between their first and second years of study.

Associate in Applied Science

To graduate with an associate in applied science degree, a student must complete specified coursework in general education, technical specialization, and general electives (see the following section), with an overall grade-point average of no less than 2.0. In addition, students must earn the minimum number of total credits required for each specialization.

General Education

These are courses designed for personal and professional development with special emphasis on the ability to think critically, to communicate effectively, to understand computer technology, and to process quantitative data. In addition, they serve to acquaint the student with some of the major modes of thought necessary to understand oneself, others, society, and the environment.

In this area a student must complete:

- one course in computer literacy for a minimum of one credit hour;
- one course in mathematics (minimum of three credit hours);
- two to three courses in communications, to include COM 209, Expository Writing and Reading, plus elective(s) for a minimum of six credit hours;
- two to three courses in social sciences, the arts, or the humanities, to include either SSCI 201, Human Relations, or SSCI 202, Social Issues, plus an elective (minimum of six credit hours).

Technical Specialization

These are courses designed to develop the necessary scientific knowledge, technical skills, and practical experience required for employment in a professional discipline. Each student must complete all technical courses specified in the selected program of study.

See the following [Programs of Study](#) sections for course requirements and descriptions.

General Electives

This component of the degree program allows the individual to pursue courses of personal or

professional interest. In this area, a student may choose a number of courses in each program of study specified as electives. These may be chosen from courses offered by the Thompson School or from selected University undergraduate courses with adviser and administrative approval.

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UNH Search:





Thompson School of Applied Science

Introduction

Degrees

- Associate in Applied Science

Other Programs

Programs of Study

Undergraduate Course Catalog 2009-2010

Thompson School of Applied Science ▼

» <http://www.thompsonschoo.unh.edu/>

Associate in Applied Science ▼

Applied Animal Science

Dairy Management

Equine Management

Small Animal Care

Applied Business Management

Business Management

Civil Technology

Architectural Technology

Construction Management

Surveying and Mapping

Community Leadership

Food Services Management

Culinary Arts

Dietetic Technology

Restaurant Management

Forest Technology

Forest Technician

Horticultural Technology

Landscape Operations

Ornamental Horticulture

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UNH Search:





Thompson School of Applied Science

Introduction

Degrees

Other Programs

- Full-Time and Part-Time Programs
- Admissions
- How to Apply
- Campus Visits
- Expenses, Financial Aid, and Scholarships
- New England Regional Student Program
- Transfer Opportunities
- Program Abbreviations

Programs of Study

Undergraduate Course Catalog 2009-2010

Thompson School of Applied Science ▼

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Full-Time and Part-Time Programs ▼

The associate in applied science degree at the Thompson School can be completed by pursuing either a full-time or part-time program. Most students enroll in the full-time program. This allows completion of a program of study in four semesters (the traditional two-year period). The sequence of required courses and semester schedules for each program are defined throughout this catalog.

Some students who cannot attend on a full-time, two-year schedule or who wish to spread the financial investment of a college education over a broader period, elect the option of part-time study. This allows students to work toward completion of the degree over an extended period, typically two calendar years to five academic years. The schedule can be shortened or lengthened to meet the needs of the individual student. For further information, please contact the Thompson School at (603) 862-1025 or (603) 862-3115.

Admissions ▼

The Thompson School welcomes applications from both recent high school graduates and adult students.

High school students who plan to enter the Thompson School after graduation will be considered on the basis of high school course selection, class rank, and high school recommendations. Emphasis is placed on the applicant's academic achievement, personal motivation, demonstrated interest in a career field, and preparation for Thompson School programs.

All traditional-age students must submit the results of the Scholastic Assessment Test (SAT-I) electronically. Adult students who have been out of high school for a number of years may request that the Office of Admissions waive the SAT-I requirement.

For an adult student who graduated from high school several years ago, the Office of Admissions will consider not only his or her academic record but also accomplishments since high school. Important factors will include professional work and advancement and motivation to succeed in Thompson School courses. In addition, applicants will be considered on the basis of any available test scores such as General Education Development (GED), Scholastic Assessment Test (SAT-I), and College Level Examination Program (CLEP); letters of reference; previous college study; and military record (if applicable).

A number of Thompson School specializations require satisfactory work in specific high school preparatory courses. These admission requirements are listed under each career specialization in this catalog.

How to Apply ▼

All first-year and transfer applicants to UNH's Thompson School of Applied Science must submit both the *Common Application* and *UNH Supplement* to be considered for admission. To access both forms, visit www.thompsonschoo.unh.edu/prospective.html.

Although UNH will accept the paper-version of the application, students are strongly encouraged to submit the application electronically through the Common Application website www.commonapp.org, as this expedites the process. These same options are available to students applying from countries other than the United States.

The *Common Application* and *UNH Supplement* may be submitted from September through mid-July. The Early Action due date is November 15. Notice of admission to the Thompson School normally will be sent within 30 days following receipt of all required information.

Please note that priority due dates for students requesting UNH residential housing are February 1 for the fall semester and November 1 for the spring semester. Housing assignments are handled on a space-available basis. The UNH financial aid due date is March 1 for the following academic year.

Campus Visits ▼

Prospective students are encouraged to participate in an interview at the Thompson School, attend an open house, and/or take a tour of the Thompson School and the rest of the UNH

campus. Interviews are recommended but not required. An open house is held in the fall. To attend the open house or to arrange your visit, please contact the Thompson School at (603) 862-1025 or visit our Web site at www.thompsonschoo.unh.edu.

Expenses, Financial Aid, and Scholarships ▼

Costs for students include tuition, fees, room and board, books and supplies, and personal and travel expenses. These costs are the same for any student enrolled at the University of New Hampshire (see [Fees and Expenses](#)) and students majoring at the Thompson School have access to the same student services. (See also Campus Life, Programs and Services for Students, and [Health Services](#).) Required curriculum and lab fees for Thompson School programs are listed with each specialization.

For information about scholarships, loans, and work-study, write the Financial Aid Office, Stoke Hall, 11 Garrison Avenue, Durham, NH 03824-3511, or call (603) 862-3600. A financial aid form must be on file for a student to be considered for many scholarships. (See also [Financial Aid](#).)

The Thompson School and the College of Life Sciences and Agriculture (of which the Thompson School is a division) also provide scholarship opportunities for Thompson School students. Call (603) 862-1025 for a list of these possibilities or visit our Web site at www.thompsonschoo.unh.edu/scholarships/index.html.

New England Regional Student Program ▼

The Thompson School participates in the New England Regional Student Program of the New England Board of Higher Education, through which each state university system in New England offers a number of regional curricula to students from other New England states. Under this program, students pay in-state tuition plus 75 percent. See the following table for Thompson School programs that are eligible in 2009-2010. Eligibility under this program may vary from year to year, so it is suggested that you obtain further information by contacting the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111; (617) 357-9620. You may also contact the UNH Office of Admissions or the Thompson School for more information.

Associate Degree Program

Available to Residents of

Applied Animal Science

Dairy Management	MA, ME, RI, VT
Equine Management	MA, ME, RI, VT
Small Animal Care	MA, ME, RI, VT
<i>Civil Technology</i>	
Architectural Technology	CT, RI
Construction Management	CT, RI
Surveying and Mapping	CT, RI
<i>Community Leadership</i>	
Community Leadership	CT, MA, ME, RI, VT
<i>Food Service Management</i>	
Culinary Arts	MA, RI, VT
Dietetic Technician	MA, RI, VT
Restaurant Management	MA, RI, VT
<i>Forest Technology</i>	
Forest Technician	CT, MA, RI, VT
<i>Horticultural Technology</i>	
Landscape Operations	RI
Ornamental Horticulture	RI

Transfer Opportunities ▼

UNH invites Thompson School graduates to continue their education at the University. Many of the associate degree programs offered by the School have baccalaureate degree counterparts. Specifically, these counterparts include civil engineering, forestry, environmental horticulture, animal sciences, dairy management, equine management, nutritional sciences, business administration, and hospitality management. Many other baccalaureate majors also are available. A final cumulative grade-point average of at least 2.5 is required for transfer to most programs; some UNH baccalaureate programs require a higher cumulative grade-point average. Successful completion of a baccalaureate degree usually requires a minimum of two years of additional study at the University. Other colleges and universities, especially those within the University System of New Hampshire, also welcome graduates from the Thompson School.

Program Abbreviations ▼

The following abbreviations are used to identify courses that are part of Thompson School of Applied Science programs.

AM	Agricultural Mechanization
AAS	Applied Animal Science
ABM	Applied Business Management
ANSC	Animal and Nutritional Science
CT	Civil Technology
COM	TSAS Communication
CSL	Community Leadership
CD	Community Development
FSM	Food Services Management
FORT	Forest Technology
HT	Horticultural Technology
MTH	TSAS Mathematics
NUTR	Nutrition
PBIO	Plant Biology
SSCI	TSAS Social Science
ZOOL	Zoology

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Thompson School of Applied Science

Introduction

Degrees

Other Programs

Programs of Study

- Applied Animal Science
- Applied Business Management
- Civil Technology
- Community Leadership
- Food Service Management
- Forest Technology
- Horticultural Technology

Undergraduate Course Catalog 2009-2010

Thompson School of Applied Science ▼

» <http://www.thompsonschoo.unh.edu/>

Agricultural Mechanization (AM) ▼

» [Click to view course offerings](#)

Professor: Thomas A. March

Applied Animal Science (AAS) ▼

» <http://www.thompsonschoo.unh.edu/aas>

» [Click to view course offerings](#)

Professor: Andrew B. Conroy

Associate Professor: Laurie Chapman-Bosco

Applied Animal Science provides students with hands-on practical skills combined with knowledge and understanding of the latest technology. The core program provides a solid background in anatomy, physiology, nutrition, health, and animal breeding. In addition, students choose a specialization in equine management, dairy management, or small animal care. Each specialization also allows for choices of elective courses in other areas.

Practical learning experience is provided at the UNH equine facilities and the Thomas P. Fairchild Dairy Teaching and Research Center. The Thompson School also operates its own grooming shop and biology laboratories. The curriculum has a number of animal-related educational programs, including an educational partnership with the New Hampshire SPCA in Stratham, and field trips to many animal-related businesses.

Admissions Requirements

Applicants to the Applied Animal Science program area must present at least two years of satisfactory work in both college preparatory mathematics and science (one of them being biology, with a lab). One year of high school chemistry is also highly recommended.

Curriculum Fee

Applied animal science, all specializations: \$570*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Applied Animal Science Curriculum Standards

Applied Animal Science students must maintain a minimum 2.0 cumulative grade-point average in AAS classes after two semesters (26 credits) to take additional AAS classes. Students with AAS averages lower than 2.0 must repeat classes with lower grades and raise their average to the required 2.0 before taking additional AAS classes. Students must have a minimum cumulative 2.0 grade-point average in AAS classes to qualify for graduation from the program.

Dairy Management

To work in the highly technical, rapidly changing field of dairy management, students must become well versed in the many aspects of dairy farm operation and management. In the dairy management specialization, students put into practice immediately many of the skills learned in the classroom. Students learn to balance rations, identify and treat diseases, read a bull proof, and gain many other skills. They work at the University's dairy farm, a modern and well-equipped teaching and research center, where students work with each other to manage the CREAM (Cooperative for Real Education in Agriculture) herd. Students are also involved with the new organic dairy facility.

Students learn the business of farming through field exercises in land management, forage production, financial management, and computer use on a dairy farm as well as through continued practical experience with cattle. The program prepares students to work both on the farm and in related businesses.

Thompson School Dairy Management has a unique arrangement with the Animal and Nutritional Sciences (ANSC) Baccalaureate Dairy Management major. Students may start with the Thompson School program, obtain their Associate in Applied Science (A.A.S.) degree then transfer to ANSC and obtain a B.S. in two additional years with a full-time course of study. This allows students to receive two degrees in as little as four years or obtain their A.A.S. degree and work in the field to later return for a B.S. Students wishing to follow this course of action need to work closely with their advisers and maintain a grade of C or better in key Applied Animal Science courses.

Career Opportunities: Herd manager, agricultural sales and/or service employee, farm manager, artificial insemination (AI) technician, crop manager, farm or farm-business owner.

Dairy Management Program of Study

First Year, Fall Semester

AAS 228, Anatomy and Physiology of Domestic Animals, 4 cr.

AAS 231, Introduction to Animal Science, 4 cr.

AAS 244, Introduction to Dairy Herd Management, 4 cr.

AAS 278, AAS Computer Applications, 1 cr.

COM 209, Expository Writing and Reading, 4 cr.

First Year, Spring Semester

AAS 223, Dairy Selection, 2 cr.

AAS 234, Equipment and Facilities Management, 3 cr.

AAS 239, Fundamentals of Animal Health, 3 cr.

AAS 242, Introduction to Business, AAS, 2 cr.

COM 212, Technical Writing, 2 cr.

MTH 202, Math II, 3 cr.

Second Year, Fall Semester

AAS 232, Animal Forages, 3 cr.

AAS 235, Animal Nutrition, 3 cr.

AAS 246, Animal Business Applications, 4 cr.

AAS 275, CREAM (Cooperative for Real Education in Agriculture) Program, 4 cr.

AAS 297, Work Experience (summer), 0 cr.

SSCI class, 2-4 cr.

Second Year, Spring Semester

AAS 240, Animal Breeding, 3 cr.

AAS 274, Dairy Cattle Diseases, 2 cr.

AAS 275, CREAM Program, 4 cr.

SSCI 201, Human Relations, 4 cr. or

SSCI 202, Social Issues, 4 cr.

Recommended electives include

AAS 221, Large Animal Behavior and Handling, 2 cr.

AM Agricultural Mechanization courses

Total: 67-70 credits

Equine Management

The equine industry in New England encompasses many different facilities and disciplines. Students in the equine management specialization combine courses in the most recent technical information with related practical experience. They gain hands-on experience in bandaging, selection, ration-balancing by computer, fitting and care of equipment, and farm and barn analysis. They also acquire decisionmaking and managerial skills. Graduates have a solid foundation to pursue either employment or additional educational opportunities upon completion of the program.

The riding focus at UNH is balance seat with schooling in dressage, cross country, and stadium jumping. Thompson School students in horsemanship classes ride in the UNH program and have the opportunity to compete in intercollegiate shows.

Thompson School Equine Management has an articulation agreement for students wishing to pursue a B.S. from ANSC following graduation from the Thompson School. This B.S. would be obtained either in Equine Industry and Management (Track I) with four additional semesters, or in Therapeutic Horseback Riding (Track II) in five additional semesters. With this articulation, students may obtain both an Associate Degree in Applied Science (A.A.S.) and a B.S. in as little as four years with full-time coursework, or obtain their A.A.S., work in the field, and return for their B.S. Students wishing to take advantage of these articulation agreements need to work closely with their advisers. An additional financial benefit may be realized by students following this articulation as the Equine Management specialization is part of the New England Regional Compact (see section headed "New England Regional Student Program").

Career Opportunities: Barn manager, breeding farm manager, sales (tack shops, grain stores), horse show manager, veterinary assistant/equine practice, riding instructor.

Equine Management Program of Study

First Year, Fall Semester

AAS 228, Anatomy and Physiology of Domestic Animals, 4 cr.

AAS 231, Introduction to Animal Science, 4 cr.

AAS 237, Equine Handling & Care Techniques, 4 cr.

AAS 278, AAS Computer Applications, 1 cr.

COM 209, Expository Writing and Reading, 4 cr.

First Year, Spring Semester

AAS 226, Equine Conformation and Lameness, 4 cr.
AAS 236, Equine Show Preparation and Competition, 1 cr.
AAS 234, Equipment and Facilities Management, 3 cr.
AAS 239, Fundamentals of Animal Health, 3 cr.
AAS 242, Introduction to Business, AAS, 2 cr.
COM 212, Technical Writing, 2 cr.
MTH 202, Math II, 3 cr.

Second Year, Fall Semester

AAS 232, Animal Forages, 3 cr.
AAS 235, Animal Nutrition, 3 cr.
AAS 246, Animal Business Applications, 4 cr.
AAS 247, Applied Equine Management, 3 cr.
AAS 297, Work Experience (summer), 0 cr.
SSCI class, 2-4 cr.
ANSC 402, Horsemanship, 3 cr.

Second Year, Spring Semester

AAS 240, Animal Breeding, 3 cr.
AAS 252, Equine Health Management, 4 cr.
AAS 253, Equine Competition Management, 2 cr.
SSCI 202, Social Issues, 4 cr.
Electives, 2-5 cr.

Recommended electives

AAS 272, Comparative Equine Operations, 1 cr.
AAS 293, Equine Field Operations, 1 - 3 cr.
ANSC 411, Introduction to Equine Science, 1 cr.
ANSC 507, Scientific Approach to Equine Discipline (ANSC 402 is a prerequisite), 3 cr.

Total: 65-69 credits

Small Animal Care

Animal companionship provides millions of people with an oasis in a hectic, impersonal world, and pet owners consistently seek additional advice on the care of their animals. The small animal care specialization prepares students to work in companion animal care positions of all types.

In their first year, students gain experience in breed types, behavior, genetics, restraint, and

training of dogs and cats. Students also master laboratory procedures such as fecal examination and heartworm testing. In addition, the students learn the basics of grooming, nutrition, first aid, disease prevention, medication administration, and toxicology. During their second year, students spend four hours a week at the New Hampshire SPCA performing all aspects of animal care while they continue with their academic subjects.

Small Animal Care is very flexible with recommended elective courses. Second-year students choose classes based on their career goals. Career tracks include veterinary hospital employment, employment in the humane/animal control fields, employment or ownership within the boarding/grooming/daycare industry, or positions in laboratory animal care.

Career Opportunities: Veterinary assistant, laboratory animal caregiver, pet store manager, pet groomer, kennel manager, animal care and control technician, animal-assisted activities/therapy volunteer and/or coordinator.

Small Animal Care Program of Study

First Year, Fall Semester

AAS 228, Anatomy and Physiology of Domestic Animals, 4 cr.

AAS 230, Small Animal Breeds and Behavior, 4 cr.

AAS 231, Introduction to Animal Science, 4 cr.

AAS 278, AAS Computer Applications, 1 cr.

COM 209, Expository Writing and Reading, 4 cr.

First Year, Spring Semester

AAS 218, Careers in Small Animal Care, 1 cr.

AAS 222, Small Animal Grooming I, 2 cr.

AAS 239, Fundamentals of Animal Health, 3 cr.

AAS 242, Introduction to Business, AAS, 2 cr.

AAS 249, Small Animal Care Techniques, 2 cr.

COM 212, Technical Writing, 2 cr. or

COM 211, Critical Reading, 2 cr.

MTH 202, Math II, 3 cr.

Electives, 2-4 cr.

Second Year, Fall Semester

AAS 235, Animal Nutrition, 3 cr.

AAS 246, Animal Business Applications, 4 cr.

AAS 279, Small Animal Care Practicum, 2 cr.

AAS 297, Work Experience (summer), 0 cr.

SSCI 201, Human Relations, 4 cr.

AAS Electives, 2- 4 cr.

Second Year, Spring Semester

AAS 224, Small Animal Management, 4 cr.

AAS 240, Animal Breeding, 3 cr.

AAS 279, Small Animal Care Practicum, 2 cr.

AAS Electives, 2-4 cr.

SSCI Class, 2-4 cr.

Electives, 2-4 cr.

Recommended AAS electives

AAS 219, Animal Cruelty: NH Laws, Investigations, and Prosecution, 1 cr.

AAS 221, Large Animal Behavior and Handling, 2 cr.

AAS 227, Small Animal Diseases, 2 cr.

AAS 233, Small Animal Grooming II, 2 cr.

AAS 236, Equine Show Preparation and Competition, 1 cr.

AAS 237, Equine Management Techniques, 4 cr.

AAS 251, Human/Animal Bond, 2 cr.

AAS 254, Animal Assisted Activities and Therapy, 2 cr.

AAS 276, Introduction to Lab Animals, 2 cr.

AAS 277, Lab Animal Practicum, 1 cr.

ABM courses (permission required)

ANSC 402, Horsemanship

CSL (Community Leadership) courses, for students interested in working with non-profit organizations

Total: 64-70 credits

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^ [back to top](#)

Applied Business Management (ABM) ▼

» <http://www.thompsonschoo.unh.edu/abm>

» [Click to view course offerings](#)

Professor: William H. Scott, David E. Tooeh

Associate Professor: Benjamin P. Fowler, Steven D. Tuttle

The Applied Business Management program combines classwork and practical experience to give students a thorough understanding of the business field. The core curriculum includes accounting, marketing and sales, human resource management, computer applications, communications, business law, and strategic management for small business. Students may select from a variety of UNH electives.

Practical experience is gained through projects with local industries, municipalities, and state agencies, as well as student-run businesses. Students also may elect to develop internships with area businesses.

Admissions Requirements

Students entering the business management program must have a minimum of two years of college preparatory mathematics. Several ABM courses require a strong background in basic mathematics and algebra.

Curriculum Fees

Applied Business Management \$125*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Business Management

Small- to medium-sized businesses represent the largest and fastest-growing segment of the state and regional economy. The Business Management program is specifically designed for students who wish to seek entry-level management positions in existing firms, prepare for management of a family-owned business, or start a new business. Business management students gain practical exposure to essential topics in business management that prepares them to seek further specialization in a business area or to prepare for transfer to a baccalaureate program.

Career Opportunities: Office manager, entrepreneur, management trainee, assistant manager, purchasing and inventory controller, bookkeeper, domestic and international sales professional, business owner.

Business Management Program of Study

First Year, Fall Semester

ABM 204, Principles of Management, 4 cr.
ABM 205, Applied Financial Accounting, 4 cr.
COM 209, Expository Writing and Reading, 4 cr.
MTH 201, Math I, 3 cr.
or
MTH 202, Math II, 3 cr.

First Year, Spring Semester

ABM 207, Applied Marketing, 4 cr.
ABM 208, Managerial Accounting, 4 cr.
ABM 226, Business Computer Applications, 4 cr.
COM 210, Public Speaking, 2 cr.
Elective, 4 cr.

Second Year, Fall Semester

ABM 202, Professional Writing, 3 cr.
ABM 206, Human Resource Management, 4 cr.
ABM 214, Applied Sales, 4 cr.
SSCI 201, Human Relations, 4 cr.
Electives, 2-4 cr.

Second Year, Spring Semester

ABM 211, Business Policy, 4 cr.
ABM 232, Business Law, 4 cr.
Social Science Elective, 2-4 cr.
Electives, 4 cr.

Elective Courses

ABM 210, Operations Management, 4 cr.
ABM 213, Applied Micro-Economics, 4 cr.
ABM 215, Business and the Community, 4 cr.
ABM 217, Web Page Programming and Design, 4, cr.
ABM 240, Ethics in Business and Society, 4 cr.
ABM 242, International Trade Applications, 4 cr.
ABM 291/292, Independent Studies, 1-4 cr.

Total: 64-66 credits

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^ [back to top](#)

Civil Technology (CT) ▼

» <http://www.thompsonschoo1.unh.edu/ct>

» [Click to view course offerings](#)

Professor: Robert G. Moynihan, Guy E. Petty

Associate Professor: Kenneth L. Flesher

Civil Technology is a dynamic educational opportunity offering skill-based learning through class instruction, extensive laboratory experience, and fieldwork, as well as portfolio opportunities. Students choose from one of the following specializations: architectural technology, construction management, or surveying and mapping.

The cornerstone of the educational experience is instruction in computer-aided design (CAD) and parametric modeling using the Thompson School's state-of-the-art CAD/BIM (Building Information Management) labs. Students in surveying use the latest GPS and surveying equipment and students studying geographical information systems (GIS) use the new GIS Instructional Lab. Additional coursework covers building science, construction contracting, materials, soils, and methodologies of professional practice in the concentration specialties.

Admissions Requirement

Applicants to the architectural technology, construction management, and surveying and mapping specializations must present at least two years of satisfactory work in college preparatory mathematics.

Curriculum Fees

Civil technology: all specializations: \$82*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Architectural Technology

In the Architectural Technology specialization, students expand on the broad construction-

related base of the Civil Technology curriculum. Faculty who are experienced, registered architects and engineers introduce students to the technical skills used in the architectural profession, including computer-aided design (CAD), parametric modeling, and building science-related technologies. Course content includes engineering-based as well as design-based disciplines. The courses, when coupled with recommended electives, provide students with a substantial knowledge base for architecture-related careers. While some graduates continue their studies in accredited baccalaureate programs and become registered architects, most find work in technical support positions within the design and construction industries in either private companies or public/government entities.

Career Opportunities: Architectural technician, CAD designer, public works operations, land development planner, facilities management, engineering aide, or construction supervisor.

Architectural Technology Program of Study

First Year, Fall Semester

CT 222, Computer Aided Design Level 1, 4 cr.

CT 223, Introduction to Surveying and Mapping, 3 cr.

CT 224, Surveying and Mapping Lab, 2 cr.

AM 280, Technical Computer Literacy/Internet Applications, 4 cr.

MTH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester

CT 231, Design I, 4 cr.

AM 275, Building Science/Residential Construction, 4 cr.

COM 212, Technical Writing, 2 cr.

or

COM 210, Public Speaking, 2 cr.

SSCI 204, Leadership Effectiveness and Group Performance, 2 cr.

Elective, 4 cr.

Second Year, Fall Semester

CT 227, Mechanical & Electrical Systems, 4 cr.

CT 247, Construction Contracting, 4 cr.

CT 281, Architecture I History and Design, 4 cr.

CT 297, Work Experience, 0 cr.

COM 209, Expository Writing and Reading, 4 cr.

Second Year, Spring Semester

CT 282, Architecture II, 4 cr.

SSCI 202, Social Issues, 4 cr.

Technical Elective, 4 cr.

Elective, 4 cr.

Total: 65 credits

Technical Elective Courses

CT 235, Introduction to Information Technology

AM 251, Welding and Fabrication Technology

AM 262, Internal Combustion Engines II (Prereq. AM 261)

other courses by approval

Construction Management

In the Construction Management specialization, students prepare for careers in land development, construction contracting and management, and land-use planning. Students learn not only how to build well but how to build wisely. They study construction and its related technologies, dealing with material selection and design, and design of foundation and drainage systems. They also examine environmental and land development issues by studying residential and commercial septic and waste disposal systems, recycling, and effective energy management. Some graduates elect to continue their education in bachelor of science programs in civil engineering or community development.

Graduates of the Construction Management specialization find employment in a variety of building industry-related positions.

Career Opportunities: Construction supervisor, project manager, cost estimator, public works employee, contractor, code enforcement officer, construction material tester, land-development planning employee, site evaluator for building components, construction product manufacturer, product representative, DOT engineering technician.

Construction Management Program of Study

First Year, Fall Semester

CT 222, Computer Aided Design Level I, 4 cr.

CT 223, Introduction to Surveying and Mapping, 3 cr.

CT 224, Surveying and Mapping Lab, 2 cr.

AM 280, Technical Computer Literacy/Internet Applications, 4 cr.

MATH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester

CT 231, Design I, 4 cr.

CT 233, Construction Surveying, 4 cr.

CT 237, Land Design and Regulations., 4 cr.

COM 212, Technical Writing, 2 cr.

or

COM 210, Public Speaking, 2 cr.

SSCI 204, Leadership Effectiveness and Group Performance 2 cr.

Second Year, Fall Semester

CT 227, Mechanical and Electrical Systems, 4 cr.

CT 230, Statics and Materials, 4 cr.

CT 247, Construction Contracting, 4 cr.

CT 297, Work Experience, 0 cr.

COM 209, Expository Writing and Reading, 4 cr.

Second Year, Spring Semester

CT 234, Soils and Foundations, 4 cr.

SSCI 202, Social Issues, 4 cr.

AM 275, Building Science/Residential Construction, 4 cr.

Technical Elective, 4 cr.

Total: 65 credits

Technical Elective Courses

CT 235, Introduction to Information Technology

AM 251, Welding and Fabrication Technology

AM 262, Internal Combustion Engines II (Prereq. AM 261)

other courses by approval

Surveying and Mapping

As land values increase and the need to use our natural resources efficiently while protecting our environment becomes more critical, the role of surveyors is expanding. The Surveying and Mapping specialization contains a core sequence of six courses (from Introductory Surveying to the Legal Aspects of Surveying) that continuously challenge students to improve their technical knowledge, computer skills, and field competency. Using electronic field measuring equipment, computers to create and plot maps, and satellite positioning technology, the surveyors and mappers of today are at the forefront of acquiring, analyzing, and managing land information.

Career Opportunities: Licensed land surveyor, DOT engineering technician, GIS technician, land development planner, construction surveyor, GPS technician.

Surveying and Mapping Program of Study

First Year, Fall Semester

CT 222, Computer Aided Design Level I, 4 cr.
CT 223, Introduction to Surveying and Mapping, 3 cr.
CT 224, Surveying and Mapping Lab, 2 cr.
AM 280, Technical Computer Literacy/Internet Applications, 4 cr.
MATH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester

CT 231, Design I, 4 cr.
CT 233, Construction Surveying, 4 cr.
CT 237, Land Design and Regulations, 4 cr.
COM 212, Technical Writing, 2 cr.
or
COM 210, Public Speaking, 2 cr.
SSCI 204, Leadership Effectiveness and Group Performance 2 cr.

Second Year, Fall Semester

CT 240, Legal Aspects of Surveying, 3 cr.
CT 243, Advanced Surveying and Mapping, 3 cr.
CT 247, Construction Contracting, 4 cr.
CT 297, Work Experience, 0 cr.
COM 209, Expository Writing and Reading, 4 cr.
Elective, 4 cr.

Second Year, Spring Semester

CT 244, Advanced Surveying Computations, 4 cr.
SSCI 202, Social Issues, 4 cr.
Technical Elective, 4 cr.
Elective, 4 cr.

Total: 67 credit

Technical Elective Courses

CT 235, Introduction to Information Technology
AM 251, Welding and Fabrication Technology
AM 262, Internal Combustion Engines II (Prereq. AM 261)

other courses by approval

Elective Courses

- AM 261, Internal Combustion Engines I
- AM 275, Building Science/Residential Construction
- CT 227, Mechanical and Electrical Systems
- CT 230, Statics and Materials
- CT 233, Construction Surveying
- CT 234, Soils and Foundations
- CT 237, Land Design and Regulations
- CT 240, Legal Aspects of Surveying
- CT 243, Advanced Surveying and Mapping
- CT 244, Advanced Surveying Computations
- CT 281, Architecture I History & Design
- CT 282, Architecture II (Prereq: Architecture I)

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^ [back to top](#)

Community Leadership (CSL) ▼

» <http://www.thompsonschoo1.unh.edu/colead>

» [Click to view course offerings](#)

Professor: Timothy E. Barretto

Associate Professor: M. Katharine Hanson

The award-winning Community Leadership program (CSL) prepares students for influential roles within community organizations by combining hands-on community outreach with an academic study of communities, leadership, citizen influence, nonprofit organization management, and general education. The Community Leadership program was the recipient of the 2007 Spirit of New Hampshire Champion Award for Higher Education.

Students participate in faculty-supervised community outreach in a wide variety of locations, including schools and other learning-focused agencies, crisis shelters, environmental organizations, animal care facilities, nursing homes, advocacy programs, town offices, citizen groups, and other community-related organizations.

Through their coursework, community placements, and individualized plans of study, students

learn how to: supervise volunteers, facilitate effective meetings, speak comfortably and knowledgeably to groups of various sizes, analyze community issues and their causes, manage financial information, organize projects and events, research and prepare grant proposals, create effective newsletters, influence public opinion, and organize people to work toward positive solutions for shared problems.

The Community Leadership program is designed to flexibly and effectively meet the needs of a diverse group of students including recent high school graduates as well as experienced community-service workers.

Admissions Requirements

Applicants to the Community Leadership program area must present at least two years satisfactory work in college preparatory mathematics and demonstrate community service or leadership experience plus strong verbal and written communication skills.

Curriculum Fee

Community Leadership: \$60*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Community Leadership Program of Study

First Year, Fall Semester

COM 209, Expository Writing and Reading, 4 cr.

SSCI 201, Human Relations, 4 cr.

CSL 201, Introduction to Community Service and Leadership, 4 cr.

CSL 200, Technology for Community Service and Leadership, 2 cr.

MTH, Mathematics, 3 cr.

First Year, Spring Semester

SSCI 202, Social Issues, 4 cr., or equivalent course determined in consultation with adviser

COM 210, Public Speaking, 2 cr.

CSL 205, Communication within Communities 4 cr.

CSL 202, Introduction to Nonprofit Organizations, 4 cr.

CSL 203, Organizing and Supervising Volunteers, 4 cr.

Second Year, Fall Semester

CSL 207, Introduction to Nonprofit Budgeting and Accounting Practices, 3 cr.

ABM 215, Business and Community, 4 cr., or CD 415 Community Development, 4 cr.
CSL 204, Managing Change and Conflict in Communities, 4 cr.
COM 211, Critical Reading, 2 cr.
CSL 290, Civic and Community Internship, 2-4 cr., or Electives, 2-4 cr.
Documented participation in one of the UNH Leadership Centers Programs

Second Year, Second Semester

CSL 206, Literature of Family and Community, 4 cr.
CSL 208, Essentials of Fund Raising for Community-Based Organizations, 2 cr.
CSL 209, Essentials of Grant Writing for Community-Based Organizations, 2 cr.
CSL 210, Community Service and Leadership Capstone Seminar, 4 cr.
Elective, 4 cr.

Total: 64-68 credits

Career Opportunities: volunteer manager, grant writer, lobbyist, public relations and marketing assistant, event planner, outreach coordinator, fundraiser/development specialist, publications media assistant, community organizer, staff supervisor.

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^ [back to top](#)

Food Service Management (FSM) ▼

» www.thompsonschoo.unh.edu/fsm

» [Click to view course offerings](#)

Associate Professor: Eugene P. Alibrio, Charles A. Caramihalis, Nancy M. Johnson

The Food Service Management program has three distinct specializations: culinary arts, dietetic technician, and restaurant management.

Admissions Requirements

Applicants to the **Dietetic Technology** specialization must present a minimum of two years of satisfactory work in college preparatory mathematics and sciences (one of these being biology, with a lab). College preparatory chemistry is highly recommended.

Applicants to the **Culinary Arts** or **Restaurant Management** specializations must present a minimum of two years of satisfactory work in college preparatory mathematics.

Curriculum Fee

Food Service Management

Culinary Arts: \$478*

Dietetic Technology: \$478*

Restaurant Management: \$478*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Culinary Arts

www.thompsonschoo.unh.edu/fsm/culinary.html

Students who complete the requirements for the culinary arts specialization are prepared for a variety of positions as entry-level chefs in the hospitality industry. In a program that combines classroom work with practical experience, students learn and explore career opportunities, menu development, cost control, food safety, baking, nutrition, management skills, and general education. Through a unique partnership with University Hospitality Services, students complete rotations in state-of-the-art production kitchens on campus at Holloway Commons and the New England Center. These rotations provide opportunities to develop proficiency in contemporary and classical culinary techniques and cooking methods related to a la carte, banquet, and quantity food production and service. The culinary arts specialization is annually reviewed by its own advisory committee of industry professionals, program faculty, and chef-instructors who revise the curriculum to meet changing industry needs.

Career Opportunities: Chef: restaurants, hotels, private clubs, theme parks, catering and banquets, destination resorts, cruise ships, corporate chains, and healthcare.

Culinary Arts Program of Study

First Year, Fall Semester

FSM 201, Food Preparation Fundamentals, 2 cr.

FSM 203, Introduction to Restaurant Management, 3 cr.

FSM 206, Food and Beverage Cost Controls, 4 cr.

FSM 207, Hospitality: Sanitation and Safety, 1 cr.

FSM 242, Culinary Skill Development in Quantity Food Production, 5 cr.

First Year, Spring Semester

FSM 204, Basic Baking, 4 cr.

FSM 214, Menu Planning and Design, 1 cr.

FSM 222, Local Foods, 4 cr.

FSM 226, Dining Room Practicum, 3 cr.

FSM 243, Culinary Practicum in Display Cooking, 3 cr.

Second Year, Fall Semester

FSM 205, Hospitality Computer Applications, 3 cr.

FSM 228, Applied Nutrition, 3 cr.

FSM 244, Catering Operations: Buffets and Banquets, 8 cr.

FSM 298, Summer Work Experience, 0 cr.

COM 209, Expository Writing and Reading, 4 cr.

MTH, Mathematics, 3 cr.

Second Year, Spring Semester

FSM 211, Facilities and Equipment Planning, 2 cr.

FSM 212, Hospitality Personnel Management, 3 cr.

FSM 245, American and Regional Cuisine, 4 cr.

FSM 247, International Cuisine, 5 cr.

COM 210, Public Speaking, 2 cr.

Social Science, 4 cr.

Total: 66 credits

Dietetic Technician

www.thompsonschoo.unh.edu/fsm/dietetic.html

This specialization is accredited by the Commission on Accreditation of the American Dietetic Association (CADE). Graduates are prepared for a variety of positions in healthcare: helping to treat and prevent disease, managing employees, developing menus, teaching nutrition classes for the public, and educating clients about the relationships among food, fitness, and health. In a program that combines classroom work and practical experience, students learn the nutrition care process and develop skills in food production and delivery.

Career Opportunities: dietetic technicians, registered (DTRs) work in a variety of settings, including hospitals, nursing homes, research facilities, schools, day-care centers, correctional facilities, restaurants, health-care facilities, food service operations, WIC programs, public health agencies, Meals on Wheels, community health programs, health clubs, weight management clinics, community wellness centers, food companies, contract food management companies, and food vending and distributing operations.

Dietetic Technician Program of Study

First Year, Fall Semester

FSM 201, Food Preparation Fundamentals, 3 cr.

FSM 204, Intro to the Dietetic Technician Profession, 1 cr.

FSM 205, Hospitality Computer Applications, 3 cr.

FSM 207, Hospitality: Sanitation and Safety, 2 cr.

NUTR 400, Nutrition Health and Wellbeing, 4 cr.

MTH, Mathematics, 3 cr.

First Year, Spring Semester

FSM 200, Introductory Chemistry, 3 cr.
FSM 202, Quantity Foods Practicum, 3 cr.
NUTR 476, Nutritional Assessment, 4 cr.
ZOOL 401, Human Biology, 4 cr.
COM 209, Expository Reading and Writing, 4 cr.

Second Year, Fall Semester

FSM 206, Food and Beverage Cost Controls, 4 cr.
FSM 260, Dietetics Practice in the Community, 3 cr.
FSM 275, Diet Therapy and Counseling, 4 cr.
COM 210, Public Speaking, 2 cr.
SSCI 204, Human Relations, 4 cr.

Second Year, Spring Semester Registration Pathway

FSM 212, Hospitality Personnel Management, 3 cr.
FSM 265, Community Nutrition for Dietetic Technicians, 2 cr.
FSM 276, Dietetics Practice in Long Term Care, 1 cr.
FSM 290, Dietetics Practice in Acute Care, 5 cr.
FSM 295, Professional Issues in Dietetic Tech, 1 cr.
Social Science, 2 cr.

Total: 65 credits

****Second Year, Spring Semester Non- Registration Pathway**

FSM 212, Hospitality Personnel Management, 3 cr.
FSM 222, Local Foods, 4 cr.
FSM 265, Community Nutrition for Dietetic Technicians, 2 cr.
Elective, 4 cr.
Social Science, 2 cr.

Total: 66 credits

*Students in the registration pathway must complete a minimum of 450 hours of supervised practice in food service management, community nutrition and clinical nutrition in on-campus facilities, local hospitals and long term care facilities. Upon successful completion of the program, these students will be eligible to sit for the registration exam to be credentialed as a dietetic technician, registered (DTR). A dietetic technician, registered (DTR) is eligible for membership in the American Dietetic Association, an organization of food and nutrition professionals. Students may choose the non-registration pathway. Students who wish to be eligible to sit for the dietetic technician, registered exam must complete all major classes with a grade of C or better to gain placement in FSM 276 and FSM 290. Students not meeting this academic standard are encouraged to repeat classes or complete the non-registration pathway.

**Students in the non-registration pathway gain experience in food service management and community nutrition supervised practice rotations and round out their program of study with a course on local foods and an elective of their choice.

Restaurant Management

www.thompsonschoo.unh.edu/fsm/restaurant.html

In the Restaurant Management specialization, students experience a carefully developed combination of classroom and laboratory work. They engage in practical, hands-on experiences, using modern commercial equipment to help them refine the necessary skills to be successful in the field. Students operate two restaurants located in the Thompson School: Stacey's Buffet and the Balcony Bistro. They present weekly buffets, and cater banquets and special events sponsored by the school. Finally, a required summer internship rounds out the program's hands-on experiential learning. Students can also work at The

New England Center and University Hospitality Services, all located on the UNH campus. Extracurricular learning and earning opportunities are available in the many restaurants located in the Seacoast area. Students who want to continue their education are strongly encouraged to take electives from the University's four-year program to get a head start on transfer status.

Career Opportunities: Restaurant owner/manager, caterer, food and beverage sales, food buyer, food and beverage manager, food services director.

Restaurant Management Program of Study

First Year, Fall Semester

FSM 201, Food Preparation Fundamentals, 3 cr.
FSM 203, Introduction to Restaurant and Hospitality Management, 3 cr.
FSM 205, Hospitality Computer Applications, 3 cr.
FSM 206, Food and Beverage Cost Controls, 4 cr.
FSM 207, Hospitality: Sanitation and Safety, 2 cr.
FSM 226, Dining Room Practicum, 3 cr.

First Year, Spring Semester

FSM 202, Menu Management, 3 cr.
FSM 214, Menu Planning and Design, 1 cr.
ABM 208, Managerial Accounting, 4 cr.
COM 209, Expository Writing and Reading, 4 cr.
MTH, Mathematics, 3 cr.

Second Year, Fall Semester

FSM 228, Culinary Nutrition, 2 cr.
FSM 241, Applied Buffet and Catering Management, 4 cr.
FSM 298, Summer Work Experience, 0 cr.
COM 210, Public Speaking, 2 cr.
SSCI 204, Leadership and Groups, 2 cr.
Elective, 4 cr.

Second Year, Spring Semester

FSM 211, Food and Beverage Facilities Planning, 2 cr.
FSM 212, Hospitality Personnel Management, 3 cr.
FSM 222, Local Foods, 4 cr.
ABM 207, Applied Marketing, 4 cr.
ABM 232, Business Law, 4 cr.

Total: 64 credits

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^ [back to top](#)

Forest Technology (FORT) ▼

» <http://www.thompsonschoo.unh.edu/fort>

» [Click to view course offerings](#)

Professor: Matthew C. Chagnon, Donald W. Quigley

Students in the Forest Technology program are uniquely prepared for careers in the forest industries and natural resource management in New Hampshire and New England. Classroom lecture is backed up by practical field work in each of the subject areas. The curriculum is accredited by the Society of American Foresters (the first two-year program in the U.S. to earn this designation) and reviewed by an advisory committee representing the full spectrum of forestry organizations in the region. There is strong emphasis on leadership, safety, communication skills, accuracy of field work, data collection, and professional presentation. Unique facilities for teaching and learning include centrally located classroom and shop facilities; 3,000+ acres of University-owned forest land; a sawmill; logging equipment; technologically advanced navigation, data collection and analysis equipment; and a faculty with vast field experience in the subject areas dedicated to teaching.

Admissions Requirement

Applicants to the Forest Technology specialization must present at least two years of satisfactory work in both college preparatory mathematics and science (one of them being biology, with a lab).

Curriculum Fee

Forest Technology, specialization, \$588*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Forest Technician

Forest technicians help plan, direct, and operate forestry enterprises. Students in the forest technician specialization experience a breadth and depth of instruction. They are exposed to the theory and practice of planting, thinning, and other silvicultural operations, including harvesting supervision. They learn how to design, lay out, and construct roads and trails; how to map and survey property; and how to manage woodlands to improve timber quality and wildlife habitat and conserve soil, water, and other natural resources. Graduates work in the wood products-related industries, in public forestland management agencies, with forestry consulting firms or urban tree care companies, and with a range of conservation organizations. Graduates can become licensed in New Hampshire to practice forestry on private lands.

Career Opportunities: Forestry consultant, fire control technician, mapping technician, GIS/GPS technician, timber and log buyer, log scaler, lumber grader, sawmill technician, arborist, urban

tree care specialist, timber cruiser/forest inventory technician, forestry equipment/products sales representative.

Forest Technician Program of Study

First Year, Fall Semester

FORT 261, Dendrology, 3 cr.

FORT 263, Forest Ecology, 3 cr.

FORT 265, Forest Orientation Seminar, 1 cr.

FORT 283, Forestry Computer Applications, 1 cr.

COM 209, Expository Writing and Reading, 4 cr.

MTH 203, Algebra and Trigonometry, 3 cr.

First Year, Spring Semester

FORT 260, Forest Mapping, 2 cr.

FORT 266, Forest Surveying, 4 cr.

FORT 270, Applied Silviculture, 4 cr.

FORT 275, Forestry Field Practices, 1 cr.

FORT 280, Aerial Photography Interpretation, 2 cr.

SSCI 202, Social Issues, 4 cr.

Second Year, Fall Semester

FORT 269, Wildlife Ecology and Conservation, 3 cr.

FORT 272, Mensuration, 4 cr.

FORT 277, Logging, 4 cr.

FORT 281, GIS for Foresters, 2 cr.

FORT 297, Forestry Work Experience, 0 cr.

COM 210, Public Speaking, 2 cr.

or

COM 211, Critical Reading, 2 cr.

or

COM 212, Technical Writing, 2 cr.

Electives, 2-4 cr.

Second Year, Spring Semester

FORT 267, Leadership, Supervision & Safety, 2 cr.

FORT 273, Management Operations and Analysis, 3 cr.

FORT 274, Industrial Forest Management Tour, 1 cr.

FORT 276, Forest Products, 4 cr.

FORT 278, Forest Insects and Diseases, 2 cr.

FORT 279, Forest Fire Control and Use, 2 cr.

Electives, 2-4 cr.

Total: 65-69 credits

» [Click to view course offerings](#)

^ [back to top](#)

Horticultural Technology (HT) ▼

» <http://www.thompsonschoo1.unh.edu/ht>

» [Click to view course offerings](#)

Professor: John L. Hart

Associate Professor: Rene J. Gingras, Dana M. Sansom

Horticultural Technology students study applied plant science, preparing for environmentally attuned careers in "the green industry." Rigorous first-year foundation courses in plant materials, plant growth and development, and soils support second-year specializations in ornamental horticulture or landscape operations. Employment opportunities in these areas continue to be excellent. Graduates enter a rapidly expanding job market in ornamental plant production, floral design, nursery and garden center management, fruit and vegetable production, parks and grounds management, and landscape design, construction, and maintenance. Many recent graduates have established their own horticulture enterprises, and others continue their education toward a four-year degree in areas such as environmental horticulture, floriculture/greenhouse management, or business management. Another option that is available to Thompson School students is to continue for a third year to complete the requirements for the specialization in Business Management offered through the Applied Business Management Program.

Admissions Requirements

Applicants to the Horticultural Technology specialization must present at least two years of satisfactory work in both college preparatory mathematics and science (one of these being biology, with a lab).

Curriculum Fee

Horticultural technology: both specializations, \$670*

*This one-time, nonrefundable curriculum fee is required to cover lab materials, specialized equipment maintenance, and transportation that is unique to the applied nature of the specialization. The curriculum fee covers the entire two-year course of study for one specialization. Any non-TSAS student may be assessed specific course fees, details of which are included in each semester's *Time and Room Schedule*. All fees are subject to change.

Ornamental Horticulture

Students who prefer to be generalists in horticultural technology may opt for the ornamental horticulture specialization. Students gain the broadest possible background in horticultural technology, which is attractive to employers in all specialty areas. To succeed in ornamental horticulture, students require a degree of technical and scientific expertise as well as creativity and problem-solving skills. They first complete core requirements in the fundamentals of plant growth and development, soils, plant propagation, plant identification, and plant health care. Then students work closely with a faculty adviser to choose approved elective coursework to round out their program of study. In their classes, students meld theory and practice then apply what they learn in weekly lab periods and on-site visits to area operations.

Career Opportunities: Owner/manager of a garden center, nursery, flower shop, or fruit and vegetable business; wholesale/retail plant producer; research/botanical garden technician; floral designer.

Ornamental Horticulture Program of Study

First year, Fall Semester

HT 201, Freshman Seminar, 1 cr.
HT 205, Plants, People and Place, 2 cr.
HT 207, Plant Structure and Function, 4 cr.
HT 215, Soils and Land Use (Half-term I), 2 cr.
HT 219, Computers in Horticulture, 1 cr.
HT 227A, Horticultural Facilities Management, 2 cr.
COM 209, Expository Writing and Reading, 4 cr.

First Year, Spring Semester

HT 204, Plant Propagation, 4 cr.
HT 217, Soils and Plant Nutrition (Half-term I), 2 cr.
HT 227B, Horticultural Facilities Management, 2 cr.
MTH, Mathematics course, 3 cr.
SSCI 203, Environmental Issues and Society, 2 cr.
HT 234, Pest Management, 4 cr.

Second Year, Fall Semester

HT 227C, Horticultural Facilities Management, 1 cr.

HT 240, Introduction to Floral Design, 2 cr.

HT 275, Floriculture Crop Production, 2 cr.

HT 286, Fruit and Vegetable Production, 3 cr.

HT 297, Horticultural Work Experience, 2 cr.

COM 210, Public Speaking, 2 cr.

or

COM 211, Critical Reading, 2 cr.

or

COM 212, Technical Writing, 2 cr.

Approved Electives 4-8 cr.

Second Year, Spring Semester

HT 227D, Horticultural Facilities Management, 1 cr.

HT 258, Herbaceous Ornamental Plants, 2 cr.

HT 276, Bedding Plant Production, 2 cr.

HT 288, Horticultural Business Management, 4 cr.

HT Electives 3-7 cr.

SSCI 201, Human Relations, 4 cr. or

SSCI 202, Social Issues, 4 cr.

Approved Electives 3-7 cr.

Total: 66-72 credits

Landscape Operations

Landscape horticulture has been projected to be one of the fastest growing service industries of the coming decade. It is a field that also offers unparalleled aesthetic satisfaction and meaningful reward. To succeed in landscaping increasingly requires a degree of technical and scientific expertise, as well as creativity, artistry, and problem-solving skills. Students in the landscape operation specialization gain a solid foundation by completing core requirements in the fundamentals of plant growth and development, soils, plant identification, pruning, and plant health care. They then complete a series of landscape maintenance, construction, design, and business courses. This combination prepares them to become successful members of the landscape industry. In their classes, students meld theory and practice, then apply what they learn in weekly lab periods and on-site visits to area operations.

Career Opportunities: Landscape designer; landscape construction specialist; garden center/nursery sales; maintenance/management for golf courses, schools and parks, private and public grounds.

Landscape Operations Program of Study

First Year, Fall Semester

HT 201, Freshman Seminar, 1 cr.
HT 205, Plants, People and Place, 2 cr.
HT 207, Plant Structure and Function, 4 cr.
HT 215, Soils and Land Use (Half-term I), 2 cr.
HT 219, Computers in Horticulture, 1 cr.
COM 209, Expository Writing and Reading, 4 cr.
SSCI 203, Environmental Issues and Society, 2 cr.

First Year, Spring Semester

HT 217, Soils and Plant Nutrition (Half term I), 2 cr.
HT 234, Pest Management, 4 cr.
HT 256, Horticultural Pruning, 2 cr.
MTH, Mathematics course, 3 cr.
SSCI 201, Human Relations, 4 cr.
or
SSCI 202, Social Issues, 4 cr.
Approved Electives 1-5 cr.

Second Year, Fall Semester

HT 251, Introduction to Design Communication, 2 cr.
HT 257, Woody Landscape Plants, 3 cr.
HT 260, Grounds Maintenance, 2 cr.
HT 263, Landscape Construction , 4 cr.
HT 297, Horticultural Work Experience, 2 cr.
COM 210, Public Speaking, 2 cr.
or
COM 211, Critical Reading, 2 cr.
or
COM 212, Technical Writing, 2 cr.
Approved Electives 1-5 cr.

Second Year, Spring Semester

HT 258, Herbaceous Ornamental Plants, 2 cr.
HT 270, Grounds Management (Half-term II), 2cr.
HT 272, Landscape Design Studio, 4 cr.
HT 288, Horticultural Business Management, 4 cr.

Approved Electives 4-8 cr.

Total: 66-72 credits

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^ [back to top](#)

TSAS Communication (COM) ▼

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TSAS Mathematics (MTH) ▼

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TSAS Social Science (SSCI) ▼

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Associate Professor: M. Katharine Hanson

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University of New Hampshire at Manchester

[Introduction](#)
[Other Programs](#)
[Programs of Study](#)

Undergraduate Course Catalog 2009-2010

University of New Hampshire at Manchester ▼

» <http://www.unhm.unh.edu>

Dean: Kristin R. Woolever

Introduction ▼

The University of New Hampshire at Manchester was established in 1985 as the University's sixth college to provide access to UNH associate, bachelor, and graduate degree programs for people who live and work in central New Hampshire. The college combines the tradition of liberal arts and professional degree programs with a focus on science and technology in a rich, urban learning environment. UNH Manchester is centrally located in Manchester's historic mill yard, where it has served as a catalyst for the revitalization of the city's downtown area and symbolizes the region's growth and diversity.

UNH Manchester Degree Programs ▼

For a complete listing of undergraduate programs, go to www.uhnm.unh.edu.

UNH Manchester offers University of New Hampshire bachelor of arts and science degree programs in the humanities, social sciences, and technology. Each year more than 1,600 students who live and work in the Merrimack Valley region choose UNH Manchester for its range of educational resources and positive learning environment. The UNH Center for Graduate & Professional Studies is located at the UNH Manchester campus and offers UNH graduate degree and professional programs to working professionals in the region.

UNH Manchester's small classes encourage interaction between faculty and students and support educational excellence. Students find a convenient, affordable university education designed to meet the unique requirements of commuting students. The University Center, located in Manchester's historic mill yard at 400 Commercial Street, is convenient and easily accessible by major highways and city bus service.

Undergraduate degree students in Manchester earn the same UNH degree as their peers on the Durham campus. Students are required to satisfy University admission and graduation

requirements, which include completion of at least 128 credits, a 2.0 minimum cumulative grade-point average, general education requirements, and, for the bachelor of arts degree, a foreign language requirement. The foreign language is not required in the bachelor of science programs.

Students also may pursue UNH associate in arts or associate in science degree programs full or part time with a choice of concentrations. Requirements for the associate degrees include completion of 64 credits, a 2.0 minimum grade-point average, and an interdisciplinary core course. Those students who complete the last 16 credits of the associate degree with a grade-point average of at least 2.5, earn a cumulative associate degree grade-point average of 2.5 or higher, and are recommended by their academic advisers are guaranteed admission to a baccalaureate program at the University in either Durham or Manchester. The University does not, however, guarantee admission to a specific college or program.

Selected graduate degrees from UNH also are available through the University of New Hampshire at Manchester.

Minors

The following **academic minors** are available at UNH Manchester for enrolled baccalaureate candidates. Further information may be obtained from the Academic Counseling Office, (603) 641-4170.

American Sign Language and Deaf Studies

Art

Business

Communication Arts

Computer Information Systems

Education

English

History

Humanities

Philosophy

Political Economy

Political Science

Psychology

Sociology

Women's Studies

Pre-Majors

Students entering the associate in arts program in general studies may prepare for transfer admission to many baccalaureate degree programs available through the University's Manchester and Durham campuses. By working closely with an academic counselor, general studies students can select structured course plans or pre-majors that are compatible with almost every baccalaureate major.

Certificate Programs for Professional Advancement

UNH Manchester's credit certificate programs are designed for individuals who want to enhance their credentials for a new position or to take the first step toward a college degree. The programs also meet the needs of working professionals with post-secondary degrees who need to expand their knowledge or update their skills.

Each program provides a concentrated learning experience in a specific subject area designed for students with varied educational backgrounds and experience. The college's accessible course schedules allow students to attend day or evening classes, full or part time.

Requirements

Students must complete between 16 and 20 credits at UNH Manchester in their chosen program to earn a certificate. Students must maintain an overall GPA of 2.0 or better in all courses. Some certificates require a minimum grade of C in each certificate course.

A certificate of completion will be awarded to those who successfully meet program requirements. Individuals completing a certificate program will be invited to participate in UNH Manchester's commencement ceremonies.

Enrollment

Individuals interested in enrolling in a certificate program for professional development must complete the enrollment form. The completed form and a \$20.00 enrollment form processing fee should be submitted to the UNH Manchester Office of Admissions at least 10 working days before the start of a semester or a summer session to ensure priority processing. Contact the Office of Admissions for more information or to request an enrollment form at (603) 641-4150.

Conflict Management in Organizations

Understanding the power and potential of conflict is an essential skill for everyone working in contemporary organizations. This certificate program prepares students to manage conflict more productively among individuals and groups. As a result of the in-depth study and hands-on applications of core intrapersonal, interpersonal, group, and structural conflict management skill, students will be able to frame conflict more collaboratively, mediate differences, negotiate win-win solutions, and work with a variety of conflict styles. They also will learn how to design and implement many types of community forums and facilitate more effective meetings.

Choose four of the following:

CMN 457, Intro to Interpersonal Communication

CSL 204, Managing Change and Conflict in Communities

CSL 205, Communication within Communities

CA 508, Conflict in Relational Communication

CA 550, Special Topics: Mediation and Negotiation

Chose one of the following:

CA 450, Introduction to Public Speaking

CA 506, Gender

CSL 201, Introduction to Community Leadership

CSL 292, Meeting Management

CA 611, Theories of Relational Communication

Community Leadership

The certificate in Community Leadership is designed for part-time students, with or without post-secondary degrees, who want to enhance their expertise in such areas as fundraising, recruiting and supervising volunteers, facilitating meetings, speaking in public, organizing events, and creating newsletters. Students will combine academic inquiry and hands-on community outreach with intensive skill development. This certificate prepares individuals who are either already experienced community workers or who are considering a career change for entry-level supervisory positions such as volunteer coordinator, grant-writer, services advocate, public relations and marketing assistant, community organizer, and lobbyist.

Select 16 credits from the following courses:

CSL 202, Introduction to Non-Profit Organizations

CSL 203, Organizing and Supervising Volunteers

CSL 204, Managing Change and Conflict in Communities

CSL 205, Communication within Communities

CSL 208, Essentials of Fundraising for Community Organizations

CSL 209, Essentials of Grant Writing for Community Organizations

CSL 290, Civic and Community Internship

Communication Skills for Managers (Four courses, 16 credits)

The fundamentals of oral and written communications are presented in this certificate program. Critical thinking is emphasized. Students learn to read, write, and speak more effectively both personally and professionally.

Business and Accounting Skills for Managers (Four courses, 16 credits)

Students gain a basic understanding of American businesses and how they work. A general overview of the functional areas in business as well as fundamental concepts of accounting, finance, and the use of computers to manage information is presented in the coursework.

Human Behavior Studies (Four courses, 16 credits)

An understanding of psychological, cultural, and social aspects of human behavior is developed in this program. The coursework explores how culture and intellect influence behavior and communication with others.

Application Deadlines

The UNH Manchester application deadline for the fall semester is June 15 and for the spring semester is November 1. For priority consideration for financial aid, the application deadline is March 1 for the following academic year.

For More Information

The UNH Manchester catalog is available online at www.unhm.unh.edu/pdf/catalog/catalog.pdf. To request a catalog or more specific information about UNH Manchester courses and degree programs, contact the Office of Admissions, University of New Hampshire at Manchester, University Center, 400 Commercial Street, Manchester, NH 03101, e-mail UNHM.admissions@unh.edu; phone (603) 641-4150; fax (603) 641-4125; TTY/TTD (603) 641-4308.

College Transition Program

The University of New Hampshire at Manchester's College Transition Program (CTP) enables students to begin their University studies as candidates for the associate in arts degree while receiving an intensive, year-long (two semesters) plan of academic support and study skill enhancement.

Students are identified as CTP-eligible during the standard admission application review process. CTP students are required to supplement their academic schedules with noncredit coursework to strengthen study skills.

Attendance at the New Student Orientation, mandatory testing and placement, and enrollment in the CTP support services and course work are required for all CTP students. After orientation, CTP students work closely with academic advisers to design appropriate course plans, establish performance goals, determine which learning support services are required, and monitor academic achievement.

Students who successfully complete two semesters of CTP may continue on to earn their associate degree through either full-time or part-time study.

College Transition Program for ESOL Students

The College Transition Program (CTP) for ESOL students is an innovative program designed to help students prepare for success in college and in life. Beginning in the fall semester, students join a learning community on the UNH Manchester campus. A combination of academic assessments and individual advising will guide students to appropriate courses in writing, reading, and mathematics.

The College Transition Program for ESOL students is a year-long program combining academic courses with a variety of activities and workshops designed to build the skills for success in college. Beyond academic courses, the program includes:

- orientation and on-going academic advising where students learn about college resources and how to successfully navigate the college environment;
- math and English assessments that help students choose classes to build on prior knowledge and prepare to achieve their goals;
- appropriate levels of ESOL classes when deemed appropriate;
- mentors who encourage students to explore their interests, develop skills, and prepare for their future;
- academic support seminars where students learn study skills and test taking techniques that will build confidence in the classroom and improve student success;
- student clubs and activities where students become part of the college community and develop organizational and leadership skills that will last a lifetime;

The College Transition Program for ESOL students is open to people with a high school

diploma. Interested applicants are encouraged to apply before April 1, the priority deadline for the fall semester. Potential students and their families are encouraged to meet with an admissions counselor from the UNH Manchester Office of Admissions. Students will learn about the application process and how the program can help them achieve their goals.

For more information, please contact the UNH Manchester Office of Admissions at (603) 641-4150 or e-mail unhm.admissions@unh.edu.

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University of New Hampshire at Manchester

Introduction

Other Programs

- General Studies
- Biological Sciences
- Business Administration
- Community Leadership

Programs of Study

Undergraduate Course Catalog 2009-2010

University of New Hampshire at Manchester ▼

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General Studies ▼

The Associate of Arts in general studies offers students academic flexibility in a program that combines the foundations of a liberal education and elective courses that satisfy personal interests. The A.A. in general studies is the first two years of a baccalaureate program, and all 400-level courses transfer to and fulfill the University's general education requirements.

Students who earn an A.A. in general studies have a foundation for continued study in any major while they develop problem-solving ability, cognitive skills, and learning techniques that are vital to a lifetime of learning. Many students begin their college study in the A.A. general studies program. Depending on personal interests and academic goals, students may choose to apply to a baccalaureate degree program prior to completion of the A.A. degree.

To graduate with an Associate of Arts degree in general studies, students must complete 64 credits, earn a minimum cumulative grade-point average of 2.0, and fulfill two types of requirements: University (general education) and degree requirements. The program includes nine courses from the general education curriculum. Working with their advisers, students enhance their program of study with elective courses where they can explore their interests and possible baccalaureate degree majors. The last 16 hours of credit must be UNH courses completed following admission and matriculation, unless permission is granted to transfer part of this work from another institution.

The A.A. general studies program includes the following course requirements:

Two writing-intensive courses, one of which must be ENGL 401, First-Year Writing

One course in quantitative reasoning

Two courses in biological sciences, physical sciences, or technology

One course in historical perspectives

One course in foreign culture or fine arts

One course in social science

One course in works of philosophy, literature, and ideas

Completion of interdisciplinary core course, Humanities I or Humanities II

Elective courses

For more information about the A.A. in general studies, please contact the UNH Manchester Office of Admissions at (603) 641-4150; e-mail unhm.admissions@unh.edu.

Biological Sciences ▼

Biology is the study of living organisms in both laboratory and field conditions. It concerns itself with questions of understanding the living world, its complex interrelationships, and the role of human beings within it.

The biological sciences program at UNH Manchester is designed to serve either as a terminal degree or as a springboard for students interested in the life sciences, which include majors in biology, microbiology, zoology, plant biology, wildlife management, environmental conservation, biochemistry, and animal sciences. Employment opportunities in the public and private sectors include education, food, water, wastewater and other industrial laboratories, clinical laboratories, biotechnology, environmental research and monitoring, and animal behavior.

Students must complete a minimum of 68 credits to graduate. There are two tracks in the A.S. degree program at UNH Manchester: biology and microbiology.

Biography Track Requirements

Math 425, Calculus I

PSYC 402, Statistics in Psychology (BIOL 528, Applied Biostatistics, offered on the Durham campus, may be substituted)

BIOL 413, Principles of Biology I

BIOL 414, Principles of Biology II

CHEM 403, General Chemistry I

CHEM 404, General Chemistry II

MICR 503, General Microbiology

CHEM 545/546, Organic Chemistry and Organic Chemistry Laboratory

BCHM 658/659, General Biochemistry and General Biochemistry Laboratory

BIOL 541, General Ecology

BIOL 604, Principles of Genetics

Microbiology Track Requirements

Students opting for the microbiology track must take all courses listed in the biology program with the exception of BIOL 541, General Ecology. Two additional courses selected from MICR 504, Brewing and Industrial Microbiology; MICR 602, Pathogenic Microbiology; or MICR 603, Bacteriology of Food, are required of students in the microbiology track.

Note: Pre-medical and pre-dental students should enroll in CHEM 651-652 and 653-654 at Durham. These courses may substitute for CHEM 545/546 and BCHM 658-659. In addition they should also enroll in MATH 426.

For more information about the biological sciences program, contact Stephen Pugh, program coordinator, (603) 641-4128; e-mail spugh@unh.edu. Or contact the UNH Manchester Office of Admissions at (603) 641-4150; e-mail unhm.admissions@unh.edu.

Business Administration ▼

The Associate of Science degree program in business administration prepares students for admission to a baccalaureate program in business or for the first step to a managerial or administrative career. The program builds on the University's general education program with required and elective courses in the business administration major and utilizes the resources of Manchester's business community and its economic strengths. Students develop an understanding of accounting, economics, and computer applications and learn about the legal aspects of business, interpersonal communication, business statistics, and technology through the elective courses.

Associate Degree in Business Administration Program of Study

Students must complete a minimum of 68 credits to graduate with an Associate of Science degree in business administration. A minimum cumulative grade-point average of 2.0 is required for graduation. In addition to completing 10 general education courses, students must complete seven courses (28 credits) in the major.

Required Courses

ADM 400, Introduction to Business

CIS 411, Introduction to Computer Applications

ECN 412, Introduction to Microeconomics

ADM 532, Introduction to Financial Accounting

ADM 533, Introduction to Managerial Accounting

Business Administration Electives

*(Choose two of the following courses. Students may select electives from 600-level ECN or ADM courses with adviser permission.)**

ADM 430, Introduction to Business Statistics

CIS 510, Computer Information Systems

CIS 515, Multimedia: Introduction & Applications

CIS 520, Database Management Concepts

CIS 542, Operating System Applications

CMN 457, Introduction to Interpersonal Communication

CA 450, Public Speaking

ECN 411, Introduction to Macroeconomic Principles

ECN 625, The Regulation of Business

ECN 635, Money, Banking, and Macroeconomic Activity

ECN 640, Business Law and Economics

ECN 650, Economics for Managers

Other 600-level ECN or ADM courses by permission

*Students planning to pursue the B.A. in Business should select ADM 430, Introduction to Business Statistics, and ECN 411, Introduction to Macroeconomic Principles.

For more information about the A.S. business administration program, contact Tom Birch, program coordinator, at (603) 641-4108; e-mail tbirch@unh.edu. Or contact the Office of Admissions at (603) 641-4150; e-mail unhm.admissions@unh.edu.

Community Leadership ▼

The A.A.S. in community leadership is designed for students who wish to transform a passion for community activism into a rewarding career. The program welcomes students with a range of experiences and goals including recent high school graduates, those preparing for a career change, or those who are already working in community service. Students combine classroom experience with experiential learning and develop valuable skills such as supervising volunteers, facilitating meetings, speaking in public, organizing events, writing press releases, fundraising, and creating newsletters.

Community leadership is one of only a handful of programs nationwide to combine hands-on community outreach with an academic study of leadership, communities, citizen influence, and non-profit organization management. Because of this unique curriculum, the program is included as part of the New England Regional Student Program in all of the New England

states.

The program, which originated at the University's Thompson School of Applied Science on the Durham campus, provides UNH Manchester students with a unique urban experience.

Students participate in a rigorous academic program that prepares them for continued study at the baccalaureate level and beyond.

Guided by involved faculty, students apply their knowledge to their work on campus, in schools, crisis shelters, environmental organizations, animal care facilities, nursing homes, advocacy programs, town offices, citizen groups, or other community-related organizations. By combining academic and real-world experience, students learn how to work collaboratively in leadership roles to find positive solutions to shared problems and to effect social change at local, regional, and national levels.

For more information about the A.A.S. in community leadership contact Kate Hanson, program director, at (603) 862-1064, or e-mail kate.hanson@unh.edu. Contact the UNH Manchester Admissions Office at (603) 641-4150, or e-mail: unhm.admissions@unh.edu.

Program Requirements and Sample Full-time Program of Study

First Year, Fall Semester

CSL 201, Introduction to Community Service & Leadership, 4 cr.

ENGL 401, First-year Writing, 4 cr.

CIS 411, Introduction to Computer Applications, 4 cr.

One of the following

SOC 400, Introduction to Sociology, 4 cr.

POLT 402, Introduction to American Government, 4 cr.

POLT 407, Law and Society, 4 cr.

Firsts Year, Spring Semester

CSL 202, Introduction to Nonprofit Organizations, 4 cr.

CSL 203, Organizing and Supervising Volunteers, 4 cr.

CSL 205, Communication within Communities, 4 cr.

One of the following

MTH 301, Elementary Math I, 4 cr.

MTH 302, Elementary Math II, 4 cr.

MTH 420, Finite Math, 4 cr.

Second Year, Fall Semester*

CSL 204, Managing Change & Conflict in Communities, 4 cr.

CSL 207, Introduction to Nonprofit Budgeting & Accounting, 3 cr.

CSL 290, Civic and Community Internship, 3 cr.

CA 450, Public Speaking, 4 cr.

CMN 457, Introduction to Interpersonal Communication, 4 cr.

* Students also will participate in a significant leadership program or project

Second Year, Spring Semester

CSL 206, Literature of Family and Community, 4 cr.

CSL 208, Essentials of Fundraising for Community-based Organizations, 2 cr.

CSL 209, Essentials of Grant Writing for Community-based Organizations, 2 cr.

CSL 210, Capstone Seminar, 4 cr.

Elective, 4 cr.

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Introduction

Other Programs

Programs of Study

- Administration
- Biology
- Communication Arts
- Computer Information Systems
- Engineering Technology
- English
- History
- Humanities
- Politics and Society
- Psychology
- Sign Language Interpretation
- The Undeclared Option

Undergraduate Course Catalog 2009-2010

University of New Hampshire at Manchester ▼

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Administration (ADM) ▼

» <http://www.unhm.unh.edu/programs/business/>

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Professor: Thomas D. Birch

Associate Professor: Kelly Kilcrease

Instructor: Walter Alderman

Lecturer: William Troy

The B.A. in business has a strong interdisciplinary focus. The curriculum adheres to a philosophy that effective decision-making requires a broad understanding of institutional and cultural climate within which businesses are operating. The program utilizes the resources of Manchester's business community and its economic strengths. During the first two years of study, students take introductory classes in business administration, economics, accounting, business statistics, and information systems along with elective and general education classes. The intermediate business core includes required courses in marketing, organizational behavior and financial or operations management. Additionally, students choose an option of focused study either in business economics and political economy, business and technology, or general business administration. For students with a unique interest, the opportunity also exists to create a self-designed concentration with approval of his/her adviser and the coordinator of the business program.

A culminating capstone experience enables students to apply their knowledge in the form of an internship, applied senior project, or special topics seminar. Because this is a Bachelor of Arts program, students fulfill the foreign language requirement.

For more information about the B.A. business administration program contact Kelly Kilcrease, program coordinator, at (603) 641-4186, or contact the Office of Admissions at (603) 641-4150, unhm.admissions@unh.edu.

Business Program of Study

Students must complete 128 credits to graduate. Each required course must be completed with a minimum grade of C-. Students must attain a minimum GPA of 2.0 in major courses required for graduation. Majors cannot use ADM 430, ECN 411, or ECN 412 to satisfy both general education and major requirements. Transfer students must complete at least half of their credits in the major and the eight-credit capstone experience in residence at UNH Manchester.

Introductory Business Core Courses (eight courses)

ADM 400, Introduction to Business
ECN 411, Introduction to Macroeconomic Principles
ECN 412, Introduction to Microeconomic Principles
CIS 411, Introduction to Computer Applications
CIS 510, Computer Information Systems
ADM 430, Business Statistics
ADM 532, Financial Accounting
ADM 533, Managerial Accounting

Intermediate Business Core (three courses)

ADM 610, Marketing Principles and Applications
ADM 620, Organizational Behavior
ADM 601, Financial Management
or
ADM 650, Operations Management

Business Field Concentrations (four courses)

Accounting and Finance

Four courses from the following:

ECN 635, Money, Banking, and Macro Activity
ADM 675, Special Topics: Auditing
Taxation (pending)
Investments (pending)
Intermediate Accounting (pending)
Budgeting (pending)
ADM 685, Application in Business Mgmt: International Finance

Business Economics and Political Economy

Four courses from the following (including at least one course at 600-level or above):

POLT 401, Politics and Society

POLT 403, United States in World Affairs
POLT 560, World Politics
ECN 640, Business Law and Economics
ECN 625, Regulation of Business
ECN 635, Money, Banking and Macroeconomic Activity
ECN 650, Economics for Managers
ECN 670, Public Sector Economics
HUMA 412, Industry and Welfare
HUMA 660, The Moral Dimensions of Economic Life
POLT 595, 596 Explorations in Politics
POLT 762, International Political Economy
ADM 695, Independent Study

Business and Technology

Four courses from the following:

CS 403, Online Network Exploration
CIS 425, Introduction to Computer Programming
CIS 515, Multimedia: Introduction and Applications
CIS 520, Database Management Concepts
CIS 550, Networking Concepts
CIS 610, Systems Analysis & Design

General Business Administration

Four courses from the following (but including no more than two ECN courses):

ADM 601, Financial Management
or
ADM 650, Operations Management
ADM 675, Special Topics in Business Administration
ADM 685, Special Topics in Business Administration
ADM 695, Independent Study
ECN 640, Business Law and Economics
ECN 625, Regulation of Business
ECN 635, Money, Banking and Macroeconomic Activity
ECN 650, Economics for Managers
UMST 500, Internship

Marketing

Four courses from the following:

A. At least two must be from marketing:

ADM 675, Special Topics: Integrated Marketing Communications

ADM 675, Special Topics: Services Marketing

ADM 685, Special Topics: Selling and Sales Management

ADM 685, Special Topics: E-Commerce

B. May also include two courses from:

ADM 675, Special Topics: Negotiations

ADM 695, Independent Study (Marketing/Communication project)

CA 450, Introduction to Public Speaking

CMN 455, Introduction to Mass Communication

CMN 457, Introduction to Interpersonal Communication

CA 516, Speechwriting

CA 531, History and Organization of Advertising

CA 550, Communications and Organizations

CA 610, Communication Technologies and Culture

UMST 500, Internship (in Marketing or Communication)

CIS 515, Multimedia Applications

ET 625, Technical Communication

ENGL 503, Persuasive Writing

Organizational Behavior

Four courses from the following:

A. At least two from:

ADM 675, Special Topics: Negotiations

ADM 675, Special Topics: Leadership

ADM 685, Special Topics: Human Resource Management

ECN 604, Business Law & Economics

B. May also include two courses from:

ADM 695, Independent Study (Org. Beh. project)

CA 450, Introduction to Public Speaking

CMN 455, Introduction to Mass Communication

CMN 457, Introduction to Interpersonal Communication

CA 550, Communications and Organizations

CA 610, Communication Technologies and Culture

PSYC 513, Cognitive Psychology

PSYC 553, Personality

Self Designed Concentration

Four courses (or 16 credit hours) with faculty approval,
including at least one course at 500-level or above.

Business Capstone Experience (two courses)

ADM 701, Business, Government and Society

ADM 750, Business Internship Seminar or

ADM 760, Applied Senior Project or

ADM 770, Special Topics Senior Seminar

Note: Because this is a Bachelor of Arts program, students must fulfill a language requirement. Efforts will be made to enhance fluency through subsequent courses and community experiences.

» [Click to view course offerings](#)

^ [back to top](#)

American Sign Language (ASL) ▼

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Biology (BIOL) ▼

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Professor: William E. Berndtson, John F. Burger, Gale B. Carey, Donald S. Chandler, William A. Condon, Richard H. Cote, Thomas M. Davis, Wayne R. Fagerberg, Thomas L. Foxall, Curtis V. Givan, W. Hunting Howell, Leland S. Jahnke, Paul C. Johnson, Thomas M. Laue, J. Brent Loy, Aaron B. Margolin, Arthur C. Mathieson, Subhash C. Minocha, Christopher D. Neefus, Thomas G. Pistole, Frank G. Rodgers, Michelle P. Scott, Robert L. Taylor Jr., Louis S. Tisa, Paul C. Tsang, Winsor H. Watson III

Affiliate Professor: Ann C. Bucklin, Clinton J. Dawes, Walter C. Shortle, Kevin T. Smith

Associate Professor: Alan L. Baker, David L. Berlinsky, Dennis J. Bobilya, Jessica A. Bolker, John J. Collins, Estelle M. Hrabak, Anita S. Klein, Thomas D. Lee, Stephen R. Pugh, David H.

Townson

Affiliate Associate Professor: Janet R. Sullivan

Research Assistant Professor: Adrienne I. Kovach, Gregg E. Moore

Clinical Associate Professor: Mary Katherine Lockwood

Extension Professor: Jeffrey A. Schloss

Biology is the study of living organisms in both laboratory and field conditions. It concerns itself with questions of understanding the living world, its complex interrelationships, and the role of human beings within it.

The B.A. in Biological Sciences at UNH Manchester is designed to: 1) allow students to earn a baccalaureate degree in biology at UNH Manchester; 2) allow students to combine study in biology with other programs and disciplines by completing a second major, a minor, or a self-designed set of elective courses along with their biology degree; 3) allow students to complete a major in biology while taking required courses in Education in preparation for the five-year M.A.T. or M.Ed. programs and state certification in secondary science education; and 4) provide an opportunity for students to complete a baccalaureate degree in biology while completing the required courses for admission to medical, dental, veterinary, physician assistant, pharmacy, physical therapy, and other professional graduate programs.

The biological sciences program at UNH Manchester also can serve as a springboard for students interested in the B.S. programs in the life sciences at UNH Durham, which include majors in biology, microbiology, zoology, plant biology, wildlife management, environmental conservation, biochemistry, and animal sciences.

Employment opportunities in the public and private sectors include education; food, water, wastewater and other industrial laboratories; clinical laboratories; biotechnology; environmental research and monitoring; and animal behavior.

Students must complete a minimum of 128 credits and satisfy the University's General Education and Foreign Language requirements. BIOL 413, 414, and CHEM 403, 404 may be used to satisfy the Group 3 General Education requirement. PSYC 402 may be used to satisfy the Group 2 General Education requirement; however, students interested in graduate or professional programs would be encouraged to take MATH 425, Calculus I, to satisfy the Group 2 requirement.

The UNH Manchester B.A. in Biological Sciences Program is structured with three levels of coursework.

Biology Core Curriculum (nine courses, 37 credits)

Five required biology courses

BIOL 413-414, Principles of Biology I and II

MICR 503, General Microbiology

BIOL 541, General Ecology

BIOL 604, Principles of Genetics

Two required chemistry courses:

CHEM 403-404, General Chemistry I and II

One course in mathematics

MATH 418, Analysis and Application of Functions, or MATH 425, Calculus I

One course in statistics

PSYC 402, Statistics in Psychology (other statistics courses such as BIOL 528 or ADM 430 may be used to satisfy this requirement).

Depending on their specific academic and career goals, and in consultation with their adviser, students may elect to take additional supporting science courses such as CHEM 545/546, Organic Chemistry with lab (one semester); CHEM 547/549 and/or 548/550, Organic Chemistry I and II with lab (two semesters); BCHM 658/659, Biochemistry with lab; MATH 426, Calculus II; and Physics 407-408, General Physics I and II. These courses often are required for admission to medical, professional, and other graduate programs.

Self-designed Concentration in Biology (four courses, 16 credits)

Students will select, in consultation with their adviser, four biology courses at the 600-700 level to be taken at UNH Manchester or UNH Durham.

Capstone Experience

The Capstone Experience will be fulfilled by taking two one-credit courses, BSCI 701, Senior Studies, during both semesters of the senior year and a capstone experience, such as BSCI 600, Field Experience, BSCI 7xx, Internship in Biology, or BSCI 7xx, Independent Study. Senior Studies will meet weekly during both semesters of the senior year in a seminar format to share information about students' research or independent study activities, listen to presentations on timely issues in biology, and support and provide training in poster production, PowerPoint and other methods of oral presentation, and scientific writing as they prepare to present the results of their capstone activities at the Undergraduate Research Conference or other venues.

In addition, all students will take elective courses to fulfill the 128-credit requirement for a B.A. degree. These elective courses could fulfill the requirements for a major or minor in another program or they could fulfill a self-designed interdisciplinary concentration. They could include some of the supporting science courses listed above. These courses would be selected in

consultation with their adviser and the appropriate faculty adviser in another program.

Note: Pre-medical and pre-dental students should enroll in CHEM 651-652 and 653-654 at Durham. These courses may substitute for CHEM 545/546 and BCHM 658-659. In addition they also should enroll in MATH 426.

For more information about the biological sciences program, contact Stephen Pugh, program coordinator, at (603) 641-4128, or e-mail spugh@unh.edu. Contact the UNH Manchester Office of Admissions at (603) 641-4150, or by e-mail to unhm.admissions@unh.edu.

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^ [back to top](#)

Communication Arts (CA) ▼

» <http://www.unhm.unh.edu/programs/ca/>

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Associate Professor: Barbara J. Jago, Jeffrey F. Klenotic, Anthony Tenczar

Senior Lecturer: Patrice T. Mettauer

Students majoring in communication arts explore the how and why of the ways humans communicate through their words, actions, and technologies. The program examines a variety of communication practices—moving image media, news, and personal relationships—as these are applied and developed across a range of social, cultural, professional, organizational, and historical contexts. In addition to classroom instruction, the program provides students with opportunities for fieldwork (including internships and service learning initiatives) that connect them to the urban community and integrate their education within “real life” communication settings.

Communication arts prepares students for many careers and postgraduate options, including advanced graduate study. Students emerge from the program with a rare combination of hands-on and theoretical knowledge that is attractive to employers from industries and professions such as film, radio, television, journalism, public relations, sales, advertising, counseling, conflict mediation, and others. The communication arts degree also translates well to related work in government, social service, and community affairs. Employers in the general business community seeking well-rounded, liberal arts graduates who can communicate effectively in a variety of mediums also find program graduates highly desirable. Furthermore, through internships students have the opportunity to learn more about their chosen fields and better prepare themselves for the transition to professional life.

Beyond the academic and professional rewards, study in communication arts enhances the meaning and richness of everyday life by enabling students to better see and understand the intricate ways in which communication binds people together.

For more information, contact Barbara Jago, program director, at (603) 641-4106, or by e-mail to bjago@comcast.net. Visit the communication Arts Web page at www.unhm.unh.edu/programs/ca, or contact the Office of Admissions at (603) 641-4150.

Degree Requirements

Communication arts majors must complete 10 courses (40 credits) and maintain an overall grade-point average in the major of 2.0 or better. Transfer students must complete at least 20 credits in the CA major at UNH Manchester. CMN 455, 456, and 457 may not be used to satisfy general education requirements for CA majors. Information on prerequisites for CA courses can be found in the course descriptions at the back of this catalogue. CA majors considering taking CIS 515, HIST 690, HUMA 796, or PSYC 762 must meet the necessary prerequisites for each course and should consult with their faculty adviser before registering. Degree requirements for the major are presented below.

I. Required Core Courses—12 credits (three courses)

Students must earn a C or better in each course if it is to count toward either the UNH Manchester communication arts major or the UNH Durham communication major.

CMN 455, Introduction to Mass Communication

CMN 456, Propaganda and Persuasion

CMN 457, Introduction to Interpersonal Communication

II. Selected Coursework—28 credits (three courses from area A, two from area B, two from area C)

Students must earn a C - or better in each selected course to satisfy CA requirements.

A. Communication Practices: Applied (12 credits). Any three courses:

CA 450, Introduction to Public Speaking

CA 501, Internship: Communication in the Urban Community

CA 502, Image and Sound

CA 503, Techniques for News Reporting

CA 504, Film Criticism

CA 506, Gender

CA 508, Conflict in Relational Communication
CA 510, Language and Interaction
CA 512, Scriptwriting
CA 513, Radio News Production
CA 514, Fundamentals of Video Production
CA 515, Advanced Video Production
CA 516, Speechwriting
CA 520, Special Topics in Applied Communication
CIS 515, Multimedia: Introduction and Applications
HIST 690, Public History
PSYC 762, Counseling

B. Communication Practices: Organization, History, and Policy (eight credits). Any two courses:

CA 525, Media Programming
CA 526, Organization of Newswork
CA 527, History of Film
CA 528, Media Policy and Law
CA 530, Celluloid Relationships
CA 531, History and Organization of Advertising
CA 535, Marital Communication
CA 539, Communicating in Families
CA 550, Special Topics in Communication Organization, History, and Policy
HUMA 640, Birth of Rock and Roll

C. Communication Practices: Theory and Research (eight credits). Any two courses:

CA 600, Research Methods: Media
CA 601, Exploring Relationships
CA 610, Communication Technologies and Culture
CA 611, Theories of Relational Communication
CA 612, Narrative
CA 615, Film History: Theory and Method
CA 618, Documentary
CA 720, Seminar in Communication Arts
CA 795, Independent Study

The core requirements for communication arts are identical to those for communication; therefore, credit for CMN 455, CMN 456, and CMN 457 automatically transfers for students transferring from Manchester to Durham to major in communication, as well as for students transferring from Durham to Manchester to major in communication arts. All other courses in

communication arts have a CA designation. The transfer of these courses to satisfy degree requirements for the communication major in Durham is determined on a course-by-course basis by communication faculty. Likewise, the transfer of communication courses (other than CMN 455, 456, 457) to satisfy degree requirements for the communication arts major in Manchester is determined on a course-by-course basis by communication arts faculty.

Suggested Concentrations in Communication Arts

Students are welcome to choose courses from across the communication arts curriculum, but those wishing to meet specific academic or professional goals may plan coursework using one of the concentrations suggested below. In addition, students may enhance their studies with activities beyond the classroom, including a wide range of internships available across the region. Communication arts students also may participate in the University's Web radio station, www.UNHM.net, as well as in numerous area film festivals.

Concentration in Moving Image Media

CA 501, Internship
CA 502, Image and Sound
CA 504, Film Criticism
CA 512, Scriptwriting
CA 514, Fundamentals of Video Production
CA 515, Advanced Video Production
CA 525, Media Programming
CA 600, Research Methods: Media
CA 610, Communication Technologies and Culture
CA 615, Film History: Theory and Method
CA 618, Documentary

Concentration in News

CA 450, Introduction to Public Speaking
CA 501, Internship
CA 503, Techniques for News Reporting
CA 513, Radio News Production
CA 525, Media Programming
CA 526, Organization of Newswork
CA 528, Media Policy and Law
CA 600, Research Methods: Media
CA 610, Communication Technologies and Culture
CA 618, Documentary

Concentration in Relational Communication

CA 501, Internship

CA 506, Gender

CA 510, Language and Interaction

CA 539, Communicating in Families

CA 550, Special Topics: Marital Communication

CA 601, Research Methods: Relational Communication

CA 611, Theories of Relational Communication

CA 612, Narrative

CA 720, Seminar in Communication Arts

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^ [back to top](#)

Computer Information Systems (CIS) ▼

» <http://www.unhm.unh.edu/programs/cis/>

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Associate Professor: Mihaela Sabin

Assistant Professor: Karla E. Vogel

Economics (ECN) ▼

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Engineering Technology (ET) ▼

» <http://www.unhm.unh.edu/programs/et/>

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Engineering technology requires the application of engineering and scientific knowledge and methods combined with technical skills in support of engineering activities. Graduates may work in a variety of areas, including engineering design, manufacturing, field service, testing, and sales, and may work in management positions related to engineering, manufacturing, and computer technology.

The UNH Manchester engineering technology programs are accredited by the Technology Accreditation Commission of ABET, 111 Market Place Suite 1050, Baltimore, MD 21202-4012,

(410) 347-7700. The Engineering Technology Program at UNH Manchester offers only junior- and senior-level coursework. Students admitted to this program must have an appropriate associate degree from the New Hampshire Technical Institute or an equivalent institution accredited by the Technology Accreditation Commission of the Accreditation Board of Engineering Technology (TAC/ABET) or show academic evidence of ability to successfully complete the requirements of this calculus-based program.

The programs at UNH Manchester are designed to meet the needs of both full- and part-time students with a mix of classes scheduled during the day and in the evening.

Engineering Technology Program of Study

Students may major in electrical engineering technology, electrical engineering technology with a concentration in computer technology, or mechanical engineering technology. Regardless of the preferred academic specialization, all entering students should have completed a minimum of 12 semester hours of college level mathematics, including two semesters of calculus. Students without this background will be required to take either MATH 426, Calculus II; or MATH 527, Differential Equations with Linear Algebra, during the first semester of the junior year. The typical junior and senior year course selections follow.

Electrical Engineering Technology (EET) and Electrical Engineering Technology with a Concentration in Computer Technology (EET-CT)

Educational Objectives

Program educational objectives are the skills and abilities graduates are expected to demonstrate during the first few years of employment. EET and EET-CT program educational objectives include:

- achieving employment in an EET and EET-CT-related position with appropriate title and compensation;
- demonstrating EET- and EET-CT-related technical problem-solving skills;
- functioning effectively in diverse and multidisciplinary teams;
- communicating effectively with both technical and non-technical audiences;
- adapting to changes in technology through continuous personal and professional development;
- being capable of assuming increasing professional responsibility;
- conducting all professional activities with integrity and demonstrating a sense of social and environmental responsibility

Program Outcomes

Program outcomes are the skills and abilities students are expected to demonstrate at graduation. Program outcomes for the EET and EET-CT program include:

- using principles and tools of science, mathematics, engineering and technology to design, implement and evaluate solutions to complex technical problems;
- developing electronic and computer systems using appropriate test equipment (with an awareness of related hardware and software issues), and using results of analyses to improve designs or methodologies;
- successfully developing a meaningful hardware/software-based project that considers ethical, social, economic, and technical constraints;
- communicating effectively both orally and in writing;
- working effectively in a team environment;
- developing research and problem-solving skills to support lifelong personal and professional development;
- evaluating the broader effects of technology and identifying connections between technology and economics, politics, culture, ethical responsibility, social structure, the environment, and other areas

Electrical Engineering Technology (EET)

ET 625, Technical Communications

ET 630, Analytical Methods in Technology

ET 671, Digital Systems

ET 674, Control Systems & Components

ET 677, Analog Systems

ET 680, Communications and Fields

ET 733, Business Organization and Law

ET 734, Economics of Bus. Activities

ET 762, Illumination Engineering

ET 763, Lighting Design & Application*

ET 788, Introduction to Digital Signal Processing

ET 790, Microcomputer Technology

ET 791, Electrical Engineering Technology Project

CS 410, Introduction to Scientific Programming

Five general education requirements

*Optional technical elective taken by students in the Lighting minor.

Electrical engineering technology students also must complete a minimum of nine credit hours of courses in communication skills.

EET Computer Technology Option

ET 601, Data Structure & Databases

ET 625, Technical Communications

ET 627, Adv. Developmental Theory of E-commerce

ET 630, Analytical Methods in Technology

ET 647, Adv. Perspectives on Prog.

ET 667, Graphics and Animation

ET 671, Digital Systems

ET 707, Object Oriented Design

ET 717, Network Security

ET 733, Business Organization and Law

ET 734, Economics of Bus. Activities

ET 737, Web Server Databases

ET 747, User Interface Design

ET 777, Adv. Distributed Programming Trends

ET 787, Artificial Intelligence and Expert Systems

ET 790, Microcomputer Systems

ET 791, Electrical Engineering Technology Project Technical Electives

Mechanical Engineering Technology

Educational Objectives

Program educational objectives are the skills and abilities graduates are expected to demonstrate during the first few years of employment. MET program educational objectives include:

- achieving employment in a MET-related position with appropriate title and compensation;
- demonstrating MET-related technical problem-solving skills;
- functioning effectively in diverse and multidisciplinary teams;
- communicating effectively with both technical and non-technical audiences;
- adapting to changes in technology through continuous personal and professional development;
- being capable of assuming increasing professional responsibility;
- conducting all professional activities with integrity and demonstrating a sense of social and environmental responsibility

Program Outcomes

Program outcomes are the skills and abilities students are expected to demonstrate at graduation. Program outcomes for the MET program include:

- using principles and tools of science, mathematics, engineering, and technology to design, implement, and evaluate solutions to complex technical problems;
- developing mechanical systems and using results of analyses to improve designs or methodologies;
- successfully developing a meaningful mechanical-based project that considers ethical, social, economic, and technical constraints;
- communicating effectively both orally and in writing;
- working effectively in a team environment;
- developing research and problem-solving skills to support lifelong personal and professional development;
- evaluating the broader effects of technology, and identifying connections between technology and economics, politics, culture, ethical responsibility, social structure, the environment, and other areas

Mechanical Engineering Technology (MET)

ET 625, Technical Communications

ET 630, Analytic Methods in Technology

ET 639/640, HVAC 1 & 2

ET 641, Production Systems

ET 644, MET Concepts in Design and Analysis, or ET 649, Production Tooling and Manufacturing Process

ET 674, Control Systems and Components

ET 675, Electrical Technology

ET 733, Business Organization & Law

ET 734, Economics of Business Activities

ET 745, Instrumentation, or ET 762 Illumination Engineering

ET 763, Lighting Design & Application

ET 751, Mechanical Engineering Technology Project

CS 410, Introduction to Scientific Programming

Five general education requirements

Mechanical engineering technology students must satisfactorily complete CHEM 403, General Chemistry, or offer evidence of equivalent coursework. They also must complete a minimum of nine credit hours of courses in communication skills.

For information about the engineering technology program, contact B.S. engineering technology program chair and program coordinator for the electrical engineering technology (EET) and the EET computer technology option programs David A. Forest, (603) 641-4322, or

e-mail to daforest@unh.edu or davidunh@comcast.net.

For information about the mechanical engineering technology program (MET), contact Ralph Draper, mechanical engineering technology program coordinator, (603) 641-4323, or e-mail rwd@unh.edu.

For admissions information, contact the Undergraduate Office of Admissions at (603) 641-4150, e-mail unhm.admissions@unh.edu.

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^ [back to top](#)

English ▼

» <http://www.unhm.unh.edu/programs/english/>

Professor: Deborah Brown, Fred Metting

Associate Professor: Susanne F. Paterson, Susan A. Walsh

Assistant Professor: Gail Fensom

Senior Lecturer: Robert M. Pugh

Lecturer: Maya Ravindranath-Abtahian

Through the study of a wide variety of literary materials, English majors deepen their understanding of history, culture, language, and human behavior. They also gain skill in writing, reading, and critical thinking.

The faculty of the UNH Manchester English department specializes in 20th century poetry, poetry writing, women's literary traditions, American literary folklore, New England culture, protest literature, nature writers, American and British fiction, Victorian literature and art, Renaissance drama, interdisciplinary studies, composition, journalism, grammar, and connections between American literature and American music.

Many upper-level courses are conducted as seminars, and individual conferences with professors are common. When possible, field trips to see local performances of drama and poetry readings are planned in conjunction with specific literature courses.

Job prospects for English majors after graduation are varied. English majors find employment in libraries and museums, government agencies, nonprofit organizations, publishing companies, journalism, the media, social work, banking, and many other fields. English

graduates also are well prepared to enter graduate study in fields such as law and business.

English Program of Study

For the English major at UNH Manchester, students must complete a minimum of 40 credits in major coursework. Introduction to Critical Analysis (ENGL 419) must be completed with a grade of C or better. Except for ENGL 419, all courses must be completed with a grade of C- or above in order to count toward the English major. Major requirements include ENGL 419, two 500-level courses, and six courses numbered 600 or above with an overall grade-point average in the major of 2.0 or better. In selecting these courses, students must meet the following distribution requirements:

- ENGL 419, Introduction to Critical Analysis, or ENGL 529, Writing About Literature
- Literature before 1800: Either two advanced courses (numbered 600 or above), or one advanced course and ENGL 513
- Literature after 1800: Either two advanced courses, or one advanced course and one course from the following list: ENGL 514, 515, or 516
- Total English courses must include ENGL 419, two 500 level courses, and seven courses numbered 600 and above

A typical first-year program in the first semester consists of Freshman English and three general education requirements or electives. In the second semester, the student typically would take Introduction to Critical Analysis, an introductory literature course, and two general education requirements or electives.

Writing Focus for English Majors

The English department offers a writing focus for English majors interested in creative or other specialized types of writing. Students who might be interested include students with an interest in graduate school in English or writing; students thinking about teaching and teaching writing; students considering law school or journalism training; students looking for careers in marketing and advertising; students wanting to write for corporate in-house publications; students thinking about freelance writing for magazines; and students who enjoy creative writing.

Four of the following nine courses are required. Students should take at least one 500-level course before taking 600- and 700-level courses.

English 501, Creative Non-Fiction

English 502, Technical Writing

English 503, Persuasive Writing

English 623, Essay Writing

English 625/626, Writing Fiction

English 627/628, Writing Poetry

English 710, Teaching Writing

Special Studies in Writing courses will be offered on an occasional basis.

For more information about the English program, contact Fred Metting, program coordinator, (603) 641-4161, e-mail fbm@cisunix.unh.edu. Or contact the UNH Manchester Office of Admissions at (603) 641-4150, e-mail unhm.admissions@unh.edu.

[^ back to top](#)

History (HIST) ▾

» <http://www.unhm.unh.edu/programs/history/>

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Professor: John J. Cerullo, John P. Resch

Affiliate Associate Professor: Robert L. Macieski

The study of history is an essential element of a liberal arts education. The history major provides both an awareness of the past, and the tools to evaluate and express one's knowledge. Study of the past gives meaning to the present, increasing understanding of the political, social, economic, and cultural forces that influence human life. The study of history may include all of human culture and society and provides tremendous latitude in the subjects that may be studied. The interdisciplinary nature of the field makes it a natural focus for study that may encompass a variety of other fields.

The student who majors in history will have the opportunity to study the breadth of human experience and will acquire the skills in critical reading and writing that form the foundation of the educated life. Students of history learn to analyze conflicting evidence, to find cause and effect, to express themselves effectively, and to ask relevant questions. Through careful observation and evaluation of information they seek explanations for human events.

Students majoring in history must complete 10 four-credit history courses or their equivalent. Students must receive at least a C in HIST 500 and HIST 797, and at least a C- in the other eight courses with an overall average in these courses of 2.0 or better.

History majors are urged to complete HIST 500 in the semester following the major declaration and HIST 797 during the senior year. In addition, a major must take at least eight courses, of which a minimum of three must be at the 600 level or above. Only one 695/696 independent study course may be used to fulfill the 600-level requirement, and no more than two

independent studies may be used toward the 10-course requirement. General education courses offered by the department may be counted for major credit or for general education credit, but not for both. No more than two 400-level courses may be counted toward the major. The program must be planned in consultation with an adviser.

The distribution of required courses for the major is as follows:

HIST 500, Introduction to Historical Thinking

HIST 797, Colloquium in History

An approved area of specialization: Four courses numbered 500 and above centered around a nation, region, time period or interdisciplinary theme (two of these courses may be taken in another department with the approval of the student's adviser).

Complementary history courses: at least three history courses from outside the area of specialization.

History elective: may be a history course from the area of specialization or complementary area.

A particular feature of the history program at UNH Manchester is the opportunity to do internships for academic credit. These internships, which enable students to work in museums, historical societies, government agencies, archives, and in other institutional settings, may be arranged with the help of the faculty. A typical first-year program consists of at least two history courses (Introduction to Historical Thinking, Western Civilization, Historical Survey of American Civilization); Freshman English; three to five general education requirements; and electives.

For more information about the history program, contact John Resch, program coordinator, at (603) 641-4134, or e-mail jpr@cisunix.unh.edu. Contact the UNH Manchester Office of Admissions at (603) 641-4150; e-mail unhm.admissions@unh.edu.

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^ [back to top](#)

Humanities (HUMA) ▼

» <http://www.unhm.unh.edu/programs/humanities/>

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Associate Professor: Terry M. Savage

The UNH Manchester humanities program is an interdisciplinary study of the human condition, past and present. The program is based on careful examination of substantial works from a variety of disciplines and is intended to develop intellectual skills, specialized knowledge, and a breadth of understanding. It provides students with a broad foundation of knowledge and skills in the liberal arts combined with a coordinated, self-designed program of studies in an area of individual student interest.

The program attracts highly motivated students who wish to assume significant responsibility for the content and direction of their studies. Humanities students develop skills of analysis, critical assessment, and effective communication as they study diverse works of art, music, literature, history, philosophy, and the sciences. Individually designed programs may cover the full range of student interests: for example, the social and ethical implications of genetic engineering or the examination of a historical period through study of its literature, arts, history, philosophy, and sciences.

Students with specific career interests are encouraged to consult with the college's academic advisers to identify courses appropriate to their needs and interests. Study in areas such as business or computer information systems, for example, often can be combined successfully with the humanities major.

Humanities majors find employment in a wide range of fields or pursue graduate study in fields such as law or education. Skills and knowledge developed through the major are important in virtually all social and career responsibilities, although the humanities major is not preparation for a specific career.

Humanities Program of Study

For the humanities major at UNH Manchester, students must complete 40 credits with a minimum grade of C in each course. The required courses for the humanities major are:

Core Courses (required of all majors)

HIST 500, Introduction to Historical Thinking

or

ENGL 419, Introduction to Critical Analysis

HUMA 411, Humanities I

HUMA 412, Humanities II

HUMA 795, Humanities: A Study of Creativity

HUMA 796, Humanities: A Study of Contemporary Issues

Self-Designed Concentration

This is an approved program of study designed by the student in consultation with a faculty adviser. In addition to courses available on the Manchester campus, students may, with prior approval, use courses from area colleges and the University's Durham campus. The concentration is made up of two humanities courses (HUMA prefix) at the 600 or 700 level and three courses from any relevant discipline at any level.

For more information about the humanities major, contact Terry Savage, program coordinator, at (603) 641-4149, e-mail tmsavage@unh.edu; or contact the Office of Admissions at (603) 641-4150.

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^ [back to top](#)

Politics and Society (PS) ▼

» <http://unhm.unh.edu/current-students/academics/degree-programs/ba-bs.php?id=12>

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Professor: Thaddeus M. Piotrowski

Associate Professor: Michael Contarino

Lecturer: Melinda Negrón

The Bachelor of Arts degree in politics and society provides an interdisciplinary approach to the study of politics. The program emphasizes the many ways in which politics shapes, and is shaped by, social, cultural, economic and historical context. The program explores such issues as the historical context of political processes and ideas, how economics and politics impact one another, and how political ideas are framed, legitimized, de-legitimized, and manipulated in different social contexts.

Politics and society majors develop critical thinking, communication, and research skills essential for careers in government, politics, journalism, diplomacy, and business. Graduates of the program also will be well prepared for graduate studies in law, political science, sociology, public policy, public administration, business administration, journalism, diplomacy, international relations, and history.

As the University's urban campus, UNH Manchester is well positioned to connect students to local, state, and national politics through coursework, research, internships. Students will have opportunities to work on local and national political campaigns, in local government, and with community organizations for credit as a part of a senior capstone project.

The politics and society program is designed to meet the needs of the region's diverse student population including traditional-age and older students. Students will fulfill the University's general education and major requirements by attending classes either full or part time. Transfer students are encouraged to apply.

Program of Study

Students must complete 128 credits to graduate, including 56 credits in the politics and society major. Students must maintain an overall cumulative grade-point average of 2.0, and a cumulative grade-point average in the major of 2.0. No credit toward the major will be given for any course in which the student receives a grade of less than C-. Students also must fulfill the UNH general education requirements. Up to three courses may be used toward both the politics and society major and the UNH general education requirements. Transfer students must take at least 28 credits in the major at UNH Manchester.

Program Requirements

The politics and society major includes seven introductory courses in five social science disciplines and history; three interdisciplinary core courses at the 500/600 level; three 500/600/700-level courses in political science and/or sociology; and a 700-level community-based capstone project and interdisciplinary seminar.

Students will complete all lower-level courses before beginning their upper-level program, except by permission of the politics and society program coordinator. Substitutions may be approved with permission of the politics and society program coordinator. Writing intensive ("W") courses are included at all levels, and will be offered all semesters. Students are encouraged to take a course in statistics and an Inquiry course in a related area.

Required Courses

Seven 400-level courses

All of the following:

POLT 401, Politics and Society

SOC 400, Introductory Sociology

ECN 411, Introduction to Macroeconomics

One of the following:

HIST 410, Historical Survey of American Civilization

HIST 422, World History in the Modern Era

HIST 435/436, Western Civilization

One of the following:

POLT 402, Introduction to American Politics

POLT 403, U.S. and World Affairs

POLT 407, Law and Society

One of the following:

ANTH 411, Global Perspectives on the Human Condition

ANTH 450, Race, Class, and Power

One of the following:

CMN 456, Propaganda and Persuasion

CMN 455, Mass Communication

Seven 500/600/700-level courses

Three of the following interdisciplinary "PS" courses:

PS 501, Social and Political Economic Theory

PS 502, The Sociology and Psychology of Political Opinion, Identity, and Belief

PS 503, Political Theory and Historical and Social Context

PS 651, Selected Topics in Politics and Society

One capstone 700-level PS course

PS 701W, Senior Project and Interdisciplinary Senior Seminar in Politics and Society

For complete program requirements including course descriptions, contact Michael Contarino, program director, (603) 641-4138, e-mail mc1@cisunix.unh.edu.

» [Click to view course offerings](#)

^ [back to top](#)

Psychology ▼

» <http://www.unhm.unh.edu/programs/psychology/>

Associate Professor: Gary S. Goldstein, Alison K. Paglia, John E. Sparrow

Psychology is the scientific study of behavior. The UNH Manchester psychology program provides students with a broad background in psychology, introducing them to both the experimental and clinical perspectives in the field. Students majoring in psychology will explore the fundamental principles involved in how people and animals learn and adapt to their environments.

The psychology program, through its independent study and internship programs, offers opportunities for participation in cooperating New Hampshire mental health, human services, and rehabilitation facilities. Students have worked in hospitals, halfway houses, mental health centers, and other agencies. The department also invites guest speakers to discuss important issues in the field.

Psychology graduates find employment as trained research assistants, mental health aides in a wide variety of human services agencies, social welfare caseworkers, teachers in special education programs, and professionals in government, business, and industry. It is normally expected that students who wish to do professional work in the field of psychology will pursue graduate training at the M.A., M.S., Ph.D., or Psy.D. level.

Psychology Program of Study

Students majoring in psychology must complete 44 credits with a minimum of C- in each course and a 2.0 overall grade-point average in all major requirements. Students with a first major in psychology may not use any psychology courses to fulfill general education requirements with the exception of PSYC 402, which may be used to fill a major requirement or general education Group 2, but not both. If used toward the general education requirement, students must replace PSYC 402 in the major with another four-credit psychology course taken on a graded basis.

Transfer students who elect to major in psychology must complete at least 24 credits in the program at UNH/UNH Manchester to qualify for the degree in psychology. Transfer students must earn a total of 44 approved credits for completion of the psychology major. The department's academic adviser will determine the distribution of these credits. Transfer students should note that courses are allotted only the number of credits granted by the original institution (after adjustments for semester-hour equivalents). Thus, students transferring from an institution at which courses carry less than four credits each must make up for any credit deficit created by acceptance of transfer credits into the psychology major.

Specific course selections should be discussed with the adviser. Exceptions to the requirements for the major require a petition to the department.

Program Requirements

A. Three core courses (PSYC 401, 402, and 502)

B. Four 500-level breadth courses, as follows:

Group I: Two courses:

PSYC 511, PSYC 512, PSYC 513, PSYC 521, PSYC 531, PSYC 591 (only Behaviorism section)

Group II: Two courses:

PSYC 552, PSYC 553, PSYC 561, PSYC 571, PSYC 581, PSYC 582

C. Four 700-level depth courses, as follows:

Group I: One or more:

PSYCH 702, 705, 710, 712, 713, 720, 722, 731, 733, 735, 737, 741A-D

Group II: One or more:

PSYC 702, 705, 755, 756, 758, 762, 763, 765, 771, 780, 783, 785, 791A-G, 793

The Durham psychology major has slightly different requirements. Students who plan to transfer to Durham should consult with their adviser.

For more information about the psychology program, contact Gary Goldstein, program coordinator, (603) 641-4179, or e-mail gary.goldstein@unh.edu. Or contact the UNH Manchester Office of Admissions at (603) 641-4150, e-mail unhm.admissions@unh.edu

[^ back to top](#)

Sign Language Interpretation (INTR) ▼

» <http://www.unhm.unh.edu/programs/sli/>

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Associate Professor: Jack E. Hoza

Lecturer: Patrick F. McCarthy

The sign language interpretation program at UNH Manchester is a specialized, in-depth program with a national reputation for quality; it has twice been recognized at the national level. In 1999, the program became the first interpreting program in the country to be found in compliance with the National Interpreter Education Standards of the Conference of Interpreter Trainers (CIT). In 2007, the program became the first interpreting program in the nation to be accredited by the Commission on Collegiate Interpreter Education (CCIE). UNH Manchester also houses one of northern New England's most comprehensive collections of books and media materials on sign language interpretation.

The program is guided by the premise that deaf people, as a linguistic minority, possess their own cultural values, literature, history, traditions, and social conventions. Interpretation requires bilingual and bicultural competence in spoken English and American Sign Language. The sign language interpretation program at UNH Manchester provides students with a strong

theoretical foundation as a generalist in ASL/English interpretation and helps prepare students for either state-level interpreter screening or national Registry of Interpreters for the Deaf (RID) interpreter certification, depending on students' skill level and experience.

Graduates may go on to pursue specialty areas in interpretation or related fields of study.

Students who complete the bachelor of science degree in sign language interpretation graduate with a varied and flexible academic base. Students also develop skills such as sustained powers of concentration, versatility in dealing with a variety of people and content areas, the ability to think quickly, and excellent communication skills in the respective languages. Students seeking to become interpreters receive a foundation in American Sign Language, deaf culture, and the interpretation process, and their programs of study often include elective courses in linguistics, sociology, communication, and psychology. Students also gain a thorough grounding in the liberal arts through the University's general education program.

Graduates of the sign language interpretation program may pursue careers in ASL/English interpretation, deaf education, rehabilitation, health care, audiology, social work, counseling, and the media. The program provides students with a varied and flexible academic base. Graduates are prepared for further study in such fields as psychology, communication, linguistics, sociology, and anthropology.

B.S. Sign Language Interpretation Program of Study

Students must complete 64 credits in the major, 40 credits in the University's general education program, and 24 credits in elective courses. Students must complete 64 credits with a grade of C or better. Students who earn less than a C on a particular course may repeat that course only once. Students must achieve a grade-point average of 2.5 or better in major courses and must pass both ASL 531 and INTR 630 with at least a B- (or successfully demonstrate competence in American Sign Language and consecutive interpretation, respectively). Transfer students must complete a minimum of eight SLI courses at UNH Manchester.

Minor in American Sign Language and Deaf Studies

Students must complete 24 credits to earn a minor. Coursework includes three required courses and three electives in ASL and Deaf Studies.

Required Courses

Language Courses

ASL 435, American Sign Language I*†

ASL 436, American Sign Language II*†
ASL 531, American Sign Language III*†
ASL 532, American Sign Language IV*†
ASL 621, Advanced ASL Discourse for Interpreters*†
INTR 539, Comparative Linguistic Analysis for Interpreters*†

Culture Courses

INTR 438, A Sociocultural Perspective on the Deaf Community*†
INTR 658, Deaf/Hearing Cultural Dynamics*†

Interpreting Courses

INTR 430, Introduction to Interpretation*
INTR 439, Ethics & Professional Standards for Interpreters*
INTR 540, Principles and Practice of Translation*
INTR 630, Principles and Practice of Consecutive Interpretation*
INTR 636, Principles and Practice of Simultaneous Interpretation*
INTR 732, Simultaneous Interpretation of Discussions, Speeches, and Reports*
INTR 734, Field Experience and Seminar I*
INTR 735, Field Experience and Seminar II*

For more information about the sign language interpretation program, contact Jack Hoza, program director, (603) 641-4143, or e-mail jack.hoza@unh.edu. Or contact the UNH Manchester Office of Admissions at (603) 641-4150, e-mail unhm.admissions@unh.edu.

* Required for the B.S.

† Meets the requirements for the minor.

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^ [back to top](#)

The Undeclared Option ▼

» <http://www.unhttp://unhm.unh.edu/current-students/academics/degree-programs/ba-bs.php?id=16>

Students who are admitted to UNH Manchester as bachelor's degree candidates, but who prefer to postpone the declaration of a major or academic specialization, may do so through the undeclared option. Undeclared students may take until the second semester of their sophomore year to select a major.

Applicants for admission to UNH Manchester who are uncertain of their academic interests are encouraged to apply as undeclared. After admission, undeclared students are assisted by academic advisers in purposeful exploration of academic interests and in making appropriate course selections. At UNH Manchester, the undeclared option also can be an effective way to prepare for entry to a variety of academic programs that are available at the Durham campus only. Students must declare a major by the time they attain 57 semester hours.

Undeclared Program Requirements and Program of Study

To graduate from UNH, students must fulfill three types of requirements: University (general education), degree, and major requirements.

While undeclared, students develop their program of study with the guidance of an academic adviser. They work toward completing their general education requirements and explore their interests and possible baccalaureate degree majors. Once a major is declared, the student follows the major program of study to fulfill graduation requirements.

To graduate with a baccalaureate degree, students must complete the following requirements: earn at least 128 credits with a minimum cumulative grade-point average of 2.0; complete four writing-intensive courses, one of which must be ENGL 401, First-Year Writing; satisfy all University general education requirements; satisfy University foreign language requirement; satisfy all major requirements.

The last 32 hours of credit must be UNH courses completed following admission and matriculation, unless prior permission is granted to transfer part of this work from another institution.

For more information about the undeclared major, call the UNH Manchester Office of Admissions at (603) 641-4150, or e-mail unhm.admissions@unh.edu.

[^ back to top](#)

UNHM Independent Study (UMIS) ▼

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UNHM Special Topics (UMST) ▼

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**Whittemore School of
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Economics**

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[Degrees](#)

[Programs of Study](#)

Undergraduate Course Catalog 2009-2010 Whittemore School of Business and Economics ▼

» <http://wsbe.unh.edu>

Dean: Daniel E. Innis

Associate Dean: Roger B. Grinde , Christine M. Shea

Assistant Director of Undergraduate Programs: Gail Stepina

Academic Counselor: Tamara S. Rury , Lisa Pappajohn , Ashley K. Lapp

Introduction ▼

The Whittemore School's (WSBE) undergraduate curricula combine a breadth of liberal education with specifics of professional education in business administration, economics, and hospitality management. Undergraduates enrolled in the Whittemore School programs take a substantial part of their coursework, normally over 50 percent, in other colleges in the University in order to fulfill the general education requirements. Beyond those requirements, students are encouraged to elect additional courses in the arts, the behavioral and social sciences, the humanities, mathematics, and the natural sciences. Thus, students who complete the Whittemore School programs in business administration, economics, and hospitality management are prepared for employment and graduate study in both these and adjacent fields.

The Whittemore School offers a minor in business administration, economics, and hospitality management. Within the limits of its resources, the Whittemore School also serves the needs of undergraduates elsewhere in the University for whom selected courses in business administration, economics, or hospitality management are desirable complements to their primary course of study. To the extent that space is available after majors have enrolled, a limited number of Whittemore School courses are open to nonmajors who have the prerequisite preparation.

A maximum of 32 credits in courses offered by the Whittemore School of Business and Economics may be taken by non-Whittemore School students.

Degree Requirements ▼

The Whittemore School offers a bachelor of arts degree program in economics and bachelor of science degree programs in business administration, economics, and hospitality management. Students who desire a professional career in public accounting are advised to follow the five-year program leading to a bachelor of science in business administration and a master of science in accounting degree (see [Accounting Program of Study](#) for details). Application for admission to this highly selective program is made in the junior year.

Course listings for business administration are found under accounting and finance (ACFI), business administration (ADMN), decision sciences (DS), management (MGT), and marketing (MKTG). Candidates for a degree must satisfy all of the University general education requirements for graduation as well as the particular requirements of their individual major programs. In addition, candidates must complete a math course (400 level). Economics majors must also satisfy specific requirements associated with the bachelor of arts degree (see Degree Requirements). No Whittemore School course may be taken on a pass/fail basis by a student majoring in business administration, economics, or hospitality management.

In order to graduate, students must achieve a grade-point average of at least 2.3 (2.0 for the B.A. in economics) in the major courses and a minimum grade of C- (for ADMN 403, students must obtain credit) in each major course. Any WSBE major required course in which a grade below C- is obtained must be repeated. No more than two WSBE courses may be repeated and each course may be repeated at most one time.

Modifications tend to occur in major programs during the four-year period of a student's undergraduate career. Students are expected to conform to these changes. Students transferring into the Whittemore School from other universities must have business, economics, and hospitality management courses reviewed and approved by the faculty through the Whittemore School Undergraduate Programs Office to be considered for major requirements. Transfer credit is normally granted only for 400 and 500-level courses.

For information concerning advanced degrees, see the [Graduate Catalog](#).

Advising System ▼

Undergraduate advising in the Whittemore School is carried out jointly by academic advisers and the faculty. The academic advisers are based in the Whittemore School Undergraduate Programs Office, where student academic records are kept. The advisers assist students in program planning, preregistration, understanding and meeting general academic requirements, and general academic and career decision making. In addition, the advisers coordinate study abroad and domestic exchange and honors programs. The faculty draw on their own

experience, expertise, and interests in helping students with course, program, and career selection.

The peer advising system, established in 1984, was created for the purpose of introducing first-year students to the college experience. Students complete a one-credit, credit/fail course each semester (ADMN 405/406, Freshman Academic Experience I/II), led by selected upper-class students under the direction of faculty. The courses' goals are to familiarize students with their major, college, and University; to introduce students to the nature of academic knowledge, academic standards, and academic/personal management skills essential for success in the University; to provide discussion of a common topic or book; to support students in their personal growth; to develop personal responsibility; and to encourage first-year students to use the advising services on campus.

Undergraduates are encouraged to develop an advisory relationship with one or more faculty members with whom they have mutual interests. All students are urged to seek as much assistance as they need, from whatever source, but are reminded that theirs is the ultimate responsibility for knowing and meeting the various academic requirements for a degree.

Independent Study/Internship ▼

Juniors or seniors in the Whittemore School may elect the internship or independent study course for variable credit. For either course, the student must secure a faculty sponsor in the area of interest and submit a written proposal prior to the start of the semester in which the project is to be undertaken. Independent study normally involves research, while internships are usually undertaken with cooperation of an off-campus organization and involve a non-routine but practical application of skills and concepts acquired in a student's program.

Independent studies and internships require considerable self-direction and self-monitoring on the part of the student, who must be in high academic standing. Careful prior review of requirements with the undergraduate adviser is necessary. Students may earn no more than 16 credits in internships, independent studies, field experience, and supervised student teaching experience.

The Washington internship, a semester of supervised work experience in Washington, D.C., is open to any major.

International and Exchange Programs ▼

The Whittemore School encourages qualified students to participate in programs of international work and study. The Whittemore School has international exchanges including Grenoble, France; Budapest, Hungary; and Glion, Switzerland.

Students may also elect to take a **dual major in international affairs**, offered in conjunction with the program for international perspectives.

Information on all other international programs can be obtained from the sponsoring department or the Center for International Education, Hood House, Room 204.

Five-Year Programs ▼

Four-One Program: B.S.-M.S.A.

The American Institute of Certified Public Accountants (AICPA), the national association of professional accountants, has mandated that five years of university education be required for national Certified Public Accountant (CPA) certification as of the year 2000. Most states have approved similar requirements for licensing/certification. The Whittemore School offers a five-year program designed for students who desire a professional accounting career. The program leads to the joint awarding of a bachelor of science in business administration and a master of science in accounting degree. Application for admission to this highly selective program is made in the junior year. Details are provided in the **Programs of Study** sections of this catalog and the **Graduate Catalog**.

Nonmajors

The Whittemore School also offers courses for nonmajors. Students interested in these courses should contact the undergraduate programs office.

Minor

The Whittemore School faculty has developed a group of courses for nonmajors that, if available and when combined with certain elective courses, can constitute a minor in business administration. A list of minor requirements is available at the Whittemore School Undergraduate Programs Office, Room 120, McConnell Hall.

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Whittemore School of Business and Economics

Introduction

Degrees

- Bachelor of Arts
- Bachelor of Science

Programs of Study

Undergraduate Course Catalog 2009-2010

Whittemore School of Business and Economics ▼

» <http://wsbe.unh.edu>

Bachelor of Arts ▼

Economics

Financial and Managerial Economics
International and Development
Economics
Public Policy Economics

Bachelor of Science ▼

Business Administration

Accounting
Entrepreneurial Venture Creation
Finance
Information Systems Management
International Business and Economics
Management
Marketing
Student-designed

Economics

Hospitality Management

Bachelor of Science-Master of Science in Accounting

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Whittemore School of Business and Economics

Introduction

Degrees

Programs of Study

- Accounting and Finance
- Business Administration
- Decision Sciences
- Economics
- Hospitality Management
- International Affairs (dual major)
- Management
- Marketing

Undergraduate Course Catalog 2009-2010 Whittemore School of Business and Economics ▼

» <http://wsbe.unh.edu>

Accounting and Finance (ACFI) ▼

» http://wsbe2.unh.edu/Accounting_and_Finance

» [Click to view course offerings](#)

Chairperson: Ahmad Etebari

Professor: Ahmad Etebari, Fred R. Kaen

Associate Professor: Stephen J. Ciccone, Afshad J. Irani, Jake Rose, Le Xu

Assistant Professor: Brian J. Bolton, Thomas Bowe Hansen, William C. Johnson, Yixin Liu, Mihail K. Miletkov, Wenjuan Xie

Lecturer: William F. Knowles CPA

Accounting and finance are fundamental academic disciplines in business schools. Accounting provides the basic language of businesses and the underlying structure for information systems. Finance provides important knowledge about asset management, capital markets, and risk strategies. This department coordinates the options in accounting and finance and is responsible for the Master of Science in Accounting.

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^ [back to top](#)

Business Administration (ADMN) ▼

» http://wsbe2.unh.edu/BS_Bus_Admin

» [Click to view course offerings](#)

Professor: Ahmad Etebari, Ross J. Gittell, Daniel E. Innis, Fred R. Kaen, Michael J. Merenda, Barry Shore, Jeffrey E. Sohl, A. R. Venkatachalam

Associate Professor: Carole K. Barnett, Ludwig A. Bstieler, Stephen J. Ciccone, Vanessa Urch Druskat, Roger B. Grinde, Afshad J. Irani, Peter J. Lane, Anthony T. Pescosolido, Catherine A.

Plante, R. Daniel Reid, Richard Saavedra, Christine M. Shea, Craig H. Wood
Assistant Professor: Melissa M. Bishop, Brian J. Bolton, Devkamal Dutta, Kholekile L. Gwebu, Thomas Bowe Hansen, N. Paul Harvey III, William C. Johnson, Jun Li, Yixin Liu, Mihail K. Miletkov, Bruce E. Pfeiffer, Jing Wang, Wenjuan Xie, Le Xu, Goksel Yalcinkaya, Honggeng Zhou

The business administration program provides training for individuals interested in managerial or administrative careers in business or in public or private institutions.

Since most graduates of the program embark upon business careers, the program emphasis is in that direction. However, the skills acquired through the business program are readily applicable to the problems faced by not-for-profit institutions such as hospitals, school systems, government departments, and other socially oriented organizations, and the program's objectives have been broadened to include all types of administration.

The curriculum offers professional education in the basic theories, principles, concepts, and analytical tools used by successful modern administrators, combining them with an introduction to the functional areas of management. Additionally students develop expertise in a particular area of business by earning an option within the business administration degree program. At the same time, typical students achieve a well-rounded education by selecting courses in the liberal arts and the sciences from other colleges and schools in the University.

The business administration program comprises ten four-credit business administration courses (ADMN prefix) representing foundational business knowledge and skills, one 1-credit business administration course to develop and demonstrate proficiency with computer applications, two 4-credit economics courses (ECON prefix), and one 400-level course in mathematics (MATH prefix). All but one of these required courses are generally completed in the first five semesters of enrollment at WSBE, leaving the student with the flexibility in the final three semesters at WSBE to earn an option in one of the offered areas. University general education requirements and other non-WSBE classes are generally taken throughout a student's time at UNH.

While taking the ten core business administration courses, a student will gain an introduction to all of the major areas of business. Using this knowledge, students decide upon an area of business in which they desire to concentrate. Within the business degree program, students must designate an option. The latest a student may declare an option is during the fall semester of their junior year, typically during preregistration for spring courses. Students are encouraged to discuss their interests with several faculty members and an academic adviser in this decision-making process. The options currently offered in the business administration

program are listed here. Due to the dynamic nature of the business world, the portfolio of options offered may change from time to time. Students are expected to stay abreast of these changes through WSBE's Undergraduate Programs Office.

Options in the Business Administration Program:

Accounting
Entrepreneurial Venture Creation
Finance
Information Systems Management
International Business and Economics
Management
Marketing
Student-Designed

Options comprise a minimum of four courses, but requirements do vary by option. Due to the specialized nature of some career fields, course requirements are greater in some options than others.

A typical plan of study follows. The options have different requirements, which are provided later. However, a detailed schedule of study for each option is not provided here. Students should check with the WSBE Undergraduate Programs Office for specific recommendations regarding scheduling of courses in the option areas and the suggested plan of study.

Freshman: Fall

ADMN 400, Introduction to Business
ADMN 403, Computing Essentials for Business (1 credit, credit/fail grading)
ADMN 405, Freshman Academic Experience I (1 credit, credit/fail grading)
ECON 401, Macro Economics or 402, Micro Economics
MATH 420, Finite Math or 424A, Calculus for Social Sciences

Freshman: Spring

ADMN 406, Freshman Academic Experience II (1 credit, credit/fail grading)
ADMN 410, Management Information Systems
ECON 401 or 402
ENGL 401

Sophomore: Fall

ADMN 420, Business Statistics
ADMN 502, Financial Accounting

Sophomore: Spring

Students typically declare an option during this semester.

ADMN 503, Managerial Accounting

One or two of the following courses

ADMN 601, Introduction to Financial Management

ADMN 611, Behavior in Organizations

ADMN 640, Quantitative Decision Making

ADMN 651, Marketing

Junior: Fall

Students must declare an option by this semester.

Take the remaining 600-level courses from the Sophomore Spring list.

Junior: Spring

*Course(s) in option area

Senior: Fall

*Course(s) in option area

ADMN 703, Strategic Management: Decision-Making (or take in Senior Spring term)

Senior: Spring

*Course(s) in option area

ADMN 703, Strategic Management: Decision-Making (if not taken in Senior Fall term)

*Depending of the choice of option and the specific requirements thereof, students may be able to take WSBE or non-WSBE electives for some of these courses.

The ***Option in Accounting*** provides students with opportunities in a variety of fields, including internal audit, external audit, tax preparation and planning, and consulting. Demand for accountants has been consistently strong. The goal of the accounting option is to prepare students for a career in accounting and the qualifications to obtain certifications, such as Certified Management Accountant (CMA), Certified Internal Auditor (CIA), and Certified Fraud Examiner (CFE). The accounting option also prepares students to enter the Master of Science in Accounting program offered by WSBE. Obtaining a Master's degree is a necessary requirement for taking the CPA exam in most states, including Massachusetts and Maine.

Required

ACFI 621, Intermediate Financial Accounting I
ACFI 622, Intermediate Financial Accounting II
ACFI 723, Advanced Managerial Concepts and Applications
ACFI 724, Auditing
ACFI 726, Taxation and Management Strategy
MGT 647, Business Law I

In addition, one course chosen from the following

ACFI 725, Financial Statement Analysis
ACFI 750, Internship in Accounting
ACFI 752, Independent Study in Accounting (including Tax Challenge)
ADMN 799, Honors Thesis in Accounting

The ***Option in Entrepreneurial Venture Creation (EVC)*** is designed for students who intend to start a high growth business, work for a new venture or become involved in a new venture creation within an established organization. The EVC Option fosters an entrepreneurial culture throughout the program. The priority is real-world learning in the high-growth environment of entrepreneurial ventures. The program includes active student participation, a seminar format, and several guest speakers. Each student participates in a senior project and an internship at a high-tech start-up.

Required

MKTG 763, Market and Opportunities Analysis
DS 741, Private Equity/Venture Capital
DS/MGT 742, Internship in Entrepreneurial and Management Practice
MGT 732, Exploration in Entrepreneurial Management

The ***Option in Finance*** provides students with opportunities in a variety of disciplines including banking, insurance, corporate finance, investment management, and risk management. Finance majors are in excellent demand. The goal of the finance option is to expose the student to all three major branches of finance: investments, corporate, and financial institutions. At the same time, the option allows the student some flexibility in choosing courses. The option helps students planning to sit for the Chartered Financial Analyst (CFA) Level I exam, the Certified Financial Manager (CFM) exam, and the Certified Financial Planner (CFP) exam.

Required

ACFI 701, Financial Policy
ACFI 702, Investments Analysis

In addition, two of the following

ACFI 703, International Financial Management

ACFI 704, Derivative Securities and Markets

ACFI 705, Management of Financial Institutions

The ***Option in Information Systems Management*** will appeal to students who wish to learn how to take advantage of contemporary technologies to solve complex business problems.

The program concentrates on two areas:

- 1) Organizations, with an emphasis on business processes
- 2) Technology, with an emphasis on systems analysis, design, implementation, and management

Experiential learning is emphasized in all courses and includes real-life corporate project experience. This unique combination of skills is in short supply, and the employment outlook is outstanding.

Required

Information Systems Development: Currently CS 405, Visual Basic I, or equivalent. The faculty coordinator of the option must approve any substitute course for CS 405.

DS 773, Managing Information Across the Enterprise

DS 774, Business Strategies and Solutions

DS 775, Corporate Project Experience

DS 780, Systems Analysis and Design; or

DS 798, Topics in Decision Sciences (specific topics may change from year to year)

The ***Option in International Business and Economics*** offers an interdisciplinary course of study, providing strong business training for students pursuing careers at organizations with an international focus, particularly in multinational corporations, international banks, and government agencies. It achieves this by combining general business training with in-depth knowledge in economics, finance, and management. Students are strongly encouraged to round out their education with either an internship at an international organization or by studying abroad for one semester.

Required

ECON 645, International Economics

Three (3) of the following

ACFI 703, International Financial Management

MGT 755, International Management

MKTG 760, International Marketing
ECON 611, Intermediate Macroeconomics
ECON 746, International Finance

One of the following

One of the remaining courses from list above.

4-credit graded internship at an international organization

1-semester study abroad experience, that involves at least one approved international business or economics course and that results in at least 12 academic credits being transferred back to UNH.

ACFI 704, Derivative Securities and Markets
ECON 668, Economic Development
ECON 692, International Economic Integration
ECON 745, International Trade
ECON 747, Multinational Enterprises

The **Management Option** provides students with opportunities to develop a substantial foundation in the principles of managing the human, organizational, technical, and financial resources of organizations to enhance strategic competitiveness. Courses emphasize problem-solving, planning, and interpersonal skills related to ethical leadership in the new economy, managing innovation and change, and international and cross-cultural issues in organizations. The option emphasizes the generalist's mindset in concert with a specialist's functional understanding of the firm. Future career paths include an array of management, supervisory, sales, and other positions in established and entrepreneurial businesses. The option is also recommended for students considering graduate education in management or law.

Required

MGT 614, Organizational Leadership and Structure
MGT 701, Business, Government, and Society

In addition, two 600- or 700-level MGT courses. Current offerings, which may change from year to year, include:

MGT 647, Business Law I (or MGT 648 Business Law II; MGT option students can count at most one Business Law course toward the MGT option)
MGT 713, Leadership Assessment and Development
MGT 732, Exploration in Entrepreneurial Management
MGT 755, International Management
MGT 798, Applied Management Seminar (open only to MGT option students with GPA of at

least 3.2)

MGT 798, Topics in Management (topics will change from year to year)

The ***Option in Marketing*** focuses on how to develop, establish, and maintain products and services of high value for customers as well as how to deliver and communicate them. The option addresses key linkages critical to effective customer and product management, from understanding customer needs and problems to delivering appropriate solutions and services. It further examines decision choices facing managers concerning market selection, entry timing, positional advantage to be pursued, targeting, and executional approaches. Students can earn an option in marketing by successfully completing the requirements in the following table. Students are required to minimally take the following courses:

Required

MKTG 752, Marketing Research

MKTG 753, Consumer/Buyer Behavior

MKTG 762, Marketing Workshop

MKTG 763, Market Opportunity Analysis

At least two additional 700-level Marketing (MKTG) courses. Offerings will vary from semester to semester.

For additional courses, students are encouraged to meet with department faculty or with the Academic Advising Office for help in choosing a career track and additional courses.

A ***Student-Designed Option in Business Administration*** is available for those students whose interests are not fully satisfied by any of the other currently available options in Business Administration. Students desiring a self-designed option must submit the application to the faculty coordinator. After the faculty coordinator's approval, the proposal must receive approval from the academic director of undergraduate business programs and the Whittemore School Dean's Office.

Students applying for this option will normally be expected to have a grade point average of at least 3.0.

The student-designed option in business administration shall consist of at least five Whittemore School courses, at least three of which shall be from the business administration departments (currently accounting and finance, decision sciences, management, and marketing).

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^ [back to top](#)

Decision Sciences (DS) ▼

» <http://wsbe2.unh.edu/department-decision-sciences>

» [Click to view course offerings](#)

Chairperson: A. R. Venkatachalam

Professor: Barry Shore, Jeffrey E. Sohl, A. R. Venkatachalam

Associate Professor: Eleanne Solorzano Dowd, Roger B. Grinde, R. Daniel Reid, Christine M. Shea, Craig H. Wood

Assistant Professor: Kholekile L. Gwebu, Sanjeev Jha, Jing Wang, Honggeng Zhou

Instructor: Peter W. Royce

Lecturer: Matthew J. Macarty

Data-driven decision expertise is critical for the survival and growth of modern enterprises. The Decision Sciences Department brings together faculty with special expertise in decision support systems, enterprise information systems, enterprise integration, management science, business statistics, operations/technology management, operations research, and manufacturing strategy. This department coordinates the options in information systems management and entrepreneurial venture creation.

» [Click to view course offerings](#)

^ [back to top](#)

Economics (ECON) ▼

» <http://wsbe2.unh.edu/department-economics>

» [Click to view course offerings](#)

Chairperson: Bruce T. Elmslie

Professor: Karen Smith Conway, Bruce T. Elmslie, Richard W. England, Evangelos O. Simos, James R. Wible, Robert S. Woodward

Associate Professor: Reagan A. Baughman, Michael D. Goldberg, Marc W. Herold, Andrew James Houtenville, Ju-Chin Huang, Robert D. Mohr, Neil B. Niman, Torsten Schmidt

Assistant Professor: Zeynep Senyuz, Le Wang

Economics is the study of how societies organize themselves to produce goods and services and to distribute those products among the members of society. In the modern world, a combination of market forces, public policies, and social customs perform these basic economic tasks. Economists use concepts, models, and data to analyze efficiency of resource

use, fairness of economic outcomes, and development of global and national economies. The economics program is designed to introduce students to the tools of economic analysis and to show students how they can use those tools to analyze and better understand real-world situations.

Undergraduate training in economics is an excellent background for a variety of careers; these include banking and financial services, journalism, international business, public service, the diplomatic corps, entrepreneurial ventures, and government administration. An undergraduate major in economics is also excellent preparation for those interested in graduate work in law, business administration, and international relations.

Graduate work in economics can lead to careers in college teaching, research in public and private agencies, and business consulting. Those interested in studying economics at the graduate level should ask their economics professors what undergraduate coursework is appropriate and which graduate schools would be suitable.

Courses in economics are open to nonmajors on a space-available basis. Students majoring in other programs have found that certain economics courses are useful supplements to their own majors and a help in gaining employment. For example, political science majors can profit from studying public economics, economic development, and international economics. Mathematics and engineering students might elect to study econometrics and intermediate microeconomics. Environmental conservation majors could choose to study ecological or energy economics. For more information on economics electives, please consult the Whittemore School Undergraduate Programs Office (McConnell 120) or the chairperson of the economics department.

The department offers the choice of a B.A. degree or a B.S. degree in economics. The B.A. degree is designed to offer students maximum flexibility in designing a program of study. Students are encouraged to take a wide variety of courses, double major, and take advantage of study abroad programs. The B.S. degree differs from the B.A. degree in that it requires more quantitative and data analysis courses but does not require a foreign language. It provides more structure and direction than the B.A. degree and is more professionally focused.

B.A. economics majors must complete eight courses in economics plus ADMN 420 with a grade of at least C- (1.67) in each course and an average grade of 2.0 or better in the major courses. These courses must include ECON 605 and 611. In addition, majors must complete either MATH 420 or 424A. Coursework in accounting is recommended but not required.

B.S. economics majors must complete nine courses in economics with a grade of at least C-

(1.67) in each course and an average grade of 2.3 or better in the major courses. These courses must include ECON 605, 611, 726, and 775. In addition, majors must complete MATH 424A, ADMN 403, 410, 420, 502, and 503.

Major credit toward ECON 605 and/or 611 will be awarded to transfer students only if equivalent courses have been taken at the junior level or above. Transfer students must take at least five of their economics courses at UNH.

Students may petition to substitute one business administration course for an economics elective if the course is at the 600 level or above and if a grade of C- or better is earned. Students may earn no more than 16 credits in internships, independent studies, field experience, and supervised student teaching experience. All economics majors must satisfy the bachelor of arts or bachelor of science degree requirements.

The economics department offers three specialized options within the bachelor of arts. By selecting economics electives from an approved list, a student majoring in economics can graduate with an option in financial and managerial economics, international and development economics, or public policy economics.

A suggested plan of study for B.A. economics majors follows:

Freshman Year

ECON 401, 402, Principles of Economics (Macro and Micro); MATH 420 or MATH 424A
ADMN 403, Computing Essentials for Business
ADMN 405, Freshman Academic Experience I (1 credit, credit/fail grading)
ADMN 406, Freshman Academic Experience II (1 credit, credit/fail grading)

Sophomore Year

ADMN 420, Business Statistics; ECON 605, Intermediate Microeconomic Analysis; ECON 611, Intermediate Macroeconomic Analysis

Junior and Senior Years

Economics electives (at least 4)

A suggested plan of study for B.S. economics majors follows:

Freshman Year

ECON 401, 402, Principles of Economics (Macro and Micro); MATH 424A
ADMN 403, Computer Essentials for Business; ADMN 405, Freshman Academic Experience I;
ADMN 406, Freshman Academic Experience II; ADMN 410, Management Information Systems; ADMN 502, Introductory Financial Accounting

Sophomore Year

ADMN 420, Business Statistics; ADMN 503, Managerial Accounting; ECON 605, Intermediate Microeconomic Analysis; ECON 611, Intermediate Macroeconomic Analysis

Junior and Senior Years

ECON 726, Introduction to Econometrics; ECON 775, Applied Research Skills for Economists; Economics electives (at least three)

A minor in economics consisting of five courses is also available. At least three of these courses must be taken at UNH. For more on the minor and options within the major, consult the Whittemore School Undergraduate Programs Office.

» [Click to view course offerings](#)

^ [back to top](#)

Hospitality Management (HMGT) ▼

» <http://wsbe2.unh.edu/bs-hospitality-management>

» [Click to view course offerings](#)

Chairperson: Raymond J. Goodman Jr.

Professor: Clayton W. Barrows, Raymond J. Goodman Jr.

Associate Professor: E. Hachemi Aliouche, Nelson A. Barber, Udo Schlenrich

Assistant Professor: Valentini Kalargyrou

Affiliate Assistant Professor: Sylvia H. Marple

Lecturer: Carl E. Lindblade, Daniel R. Winans

The program in hospitality management is an integral part of the offerings of the Whittemore School. It is one of only a few programs worldwide accredited by both the Association to Advance Collegiate Schools of Business (AACSB) and the Accreditation Commission for Programs in Hospitality Administration (ACPHA). Graduates are prepared to assume leadership development, management trainee, and management positions in all sectors of the service sector, with primary emphasis on the hospitality industry.

Graduates have accepted positions in the lodging and food service sectors (and their allied businesses and wholesalers), software companies, tourism, travel and recreation industries, and in retirement facilities, hospitals, and college and university food service operations.

In order to have a well-rounded university education, students take courses in liberal arts as

well as foundation courses in business administration and economics. The hospitality management curriculum builds upon this foundation and provides experience and in-depth education in the lodging and food service-related industries, as well as the broader industries that comprise the hospitality discipline.

With our on-campus learning laboratory, the **New England Center Hotel and Conference Center**, the program includes a mix of practical experiences along with classroom activities. These practical experiences are provided by major consulting projects to industry as part of classroom activities, lecture series, seminars, and field trips; a minimum of 800 hours of an approved work experience practicum; and by involvement in the food service and lodging operations with University Hospitality Services (the New England Center and campus dining and catering).

The Department of Hospitality Management curriculum is comprised of fourteen required courses and three required hospitality electives, two economics courses, six business administration courses, and one mathematics course. Freshman and sophomore years consist of twelve core courses in the above mentioned disciplines. Sophomore, junior-level, and senior-level courses include the functional hospitality and business discipline courses required for one to develop into a successful manager. A wide range of elective courses, independent studies, and internships can complement the required curriculum.

To graduate, students must obtain a 2.3 grade-point average in all major required courses and a minimum grade of C- in each major course. Graduates of this program who are qualified for, and interested in, further allied studies are well prepared for advanced degree programs in hospitality, tourism, business, law, institutional, or health administration. Students may earn up to six total credits in internships, independent studies, field experience, and supervised student teaching experiences.

A required plan of study is as follows:

Freshman Year

HMGT 401, The Hospitality Industry: An Historical Perspective and Distinguished Lecture Series

HMGT 403, Introduction to Food and Beverage Management

HMGT 404, UHS Hospitality Practicum I (1 credit, credit/fail grading)

ADMN 405, Freshman Academic Experience I (1 credit, credit/fail grading)

ADMN 406, Freshman Academic Experience II (1 credit, credit/fail grading)

ADMN 403, Computing Essentials for Business

ECON 401, Principles of Economics (Macro) and ECON 402, Principles of Economics (Micro)

MATH 420, Finite Mathematics or MATH 424A, Calculus for the Social Sciences

University general education courses

Sophomore Year

HMGT 504, UHS Hospitality Practicum I (1 credit, credit/fail grading)

HMGT 554, Lodging Operations Management

HMGT 567, Food and Beverage Operations Management

ADMN 420, Business Statistics

ADMN 502, Introductory Financial Accounting

HMGT 618, Uniform Systems for the Hospitality Industry

Four University general education courses

Junior Year

HMGT 600, Hospitality Marketing Management

HMGT 667, Advanced Food & Beverage Management

HMGT 625, Hospitality and Employment Law

HMGT 635, Hospitality Human Resource Management

ADMN 611, Behavior in Organizations

Hospitality Management Elective*

Two general education courses

Senior Year

HMGT 655, Hospitality Finance and Development

HMGT 703, Strategic Management in the Hospitality Industry

Hospitality Management Electives*

Four free electives

*Three elective courses in Hospitality Management (or two electives and an internship, teacher assistant, or independent study analysis) are required for graduation.

A minor in hospitality management comprises five courses. The four listed below are required:

HMGT 401, Hospitality Industry: Historical Perspectives and Distinguished Lecture Series

HMGT 554, Lodging Operations Management

HMGT 567, Food and Beverage Operations Management

ADMN 502, Introductory Financial Accounting

Choose one of the following

HMGT 661, Meeting Planning Management

HMGT 681, Resort Management

HMGT 771, Beverage Management/International Wines

HMGT 777, Casino Management

HMG 772, Senior Living Industries Management

HMG 750, Senior Operations Seminar

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^ [back to top](#)

International Affairs (dual major) ▼

For program description, see [Special University Programs](#).

^ [back to top](#)

Management (MGT) ▼

» <http://wsbe2.unh.edu/departement-management>

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Chairperson: Michael J. Merenda

Professor: Ross J. Gittell, Michael J. Merenda

Associate Professor: Carole K. Barnett, Vanessa Urch Druskat, Peter J. Lane, Anthony T. Pescosolido, Richard Saavedra

Assistant Professor: Devkamal Dutta, N. Paul Harvey III, Jun Li

Affiliate Assistant Professor: Margaret Naumes

Lecturer: Karen L. Fisher, Robert A. Gough Jr., Thomas N. Towle, Meera Venkatachalam

Adjunct Faculty: Timothy J. Churchard

The study of management focuses on how organizations develop, craft, and implement winning strategies, structures, systems, and values in global markets. Courses emphasize the organization's stakeholders and the accompanying social, political, legal, economic, and technical dynamics of worldwide markets. The department's goal is the development of effective, socially responsible, and ethical leaders through innovative teaching, research, and service. Courses cover such topics as leadership, decision-making, ethics, innovation, organizational learning, entrepreneurship, knowledge and human resource management, governmental policy making, and global competitiveness. The department's approach to teaching involves educational methods that promote experimental learning, self-awareness, theoretical mastery, and case studies and managing oneself. A major emphasis is on action learning through group projects, business plan preparation, and the case method.

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^ [back to top](#)

Marketing (MKTG) ▼

» <http://wsbe2.unh.edu/departement-marketing>

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Chairperson: Peter J. Lane

Professor: Daniel E. Innis

Associate Professor: Ludwig A. Bstieler, Melike Billur Talay

Assistant Professor: Billur Akdeniz, Melissa M. Bishop, Bruce E. Pfeiffer, Goksel Yalcinkaya

Lecturer: William C. Machanic, Chuck Martin, Peter F. Masucci

The marketing department is dedicated to preparing students for 21st century marketing careers by:

- offering students a strong marketing foundation and a career track that will make them attractive to employers upon graduation and provide the basis for lifelong marketing learning;
- interacting with students in ways that encourage individual curiosity, interest, and expression;
- engaging in leading-edge scholarly research and integrating that research into the marketing curriculum.

Concentrating in marketing provides students with a wide array of career paths, including advertising, sales, retailing, market analysis, public relations, marketing research, product or brand management, sales forecasting, competitive analysis, strategic marketing planning, media planning, and several others. Accordingly, the department offers tracks beyond the set of core courses required of all marketing students to help students prepare for such careers. The department coordinates the option and tracks.

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^ [back to top](#)

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