

1997

University of Maine Bulletin, 1997-1998 Undergraduate Catalog, part 1

University of Maine

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UNIVERSITY OF MAINE
BULLETIN

1997-1998
Undergraduate Catalog

Non-discrimination Policies

The University of Maine is committed to a living, learning and working environment fully inclusive of the diverse populations it serves. Thus, the University shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, sexual orientation, national origin or citizenship status, age, handicap, or veteran status in employment, education, and all other areas of the University.

Consistent with this policy, the University has a responsibility to: (1) provide a living, learning and working environment free of harassment related to any of the above characteristics specifically including race, sex, and sexual orientation, (2) provide reasonable accommodation to assure the fullest possible participation of persons with disabilities in the educational and employment life of the University, (3) assure employment and educational practices free of discrimination, and (4) provide full and impartial investigation of concerns regarding discrimination in these categories in any area of the University.

Sexual Harassment Policy

In accordance with its policy of complying with non-discrimination laws, the University will regard freedom from sexual harassment as a right which will be guaranteed as a matter of policy. Any employee or student will be subject to disciplinary action for violation of this policy.

Sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature constitute sexual harassment when:

1. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education;
2. Submission to or rejection of such conduct by an individual is used as the basis for academic or employment decisions affecting that individual; or
3. Such conduct has the purpose or effect of interfering with an individual's academic or work performance or creating an intimidating, hostile or offensive employment, educational, or living environment.

Consenting relationships may constitute sexual harassment under this policy. When a professional power differential exists between members of the University of Maine and a romantic or sexual relationship develops, there is a potential for abuse of that power, even in relationships of apparent mutual consent. A faculty or staff member should not engage in such relationships. Further, the University prohibits the abuse of power in romantic or sexual relationships.

To ensure that power is not abused and to maintain an environment free of sexual harassment, a faculty or staff member must eliminate any current or potential conflict of interest by removing himself or herself from decisions affecting the other person in the relationship. Decisions affecting the other person include grading, evaluating, supervising, or otherwise influencing that person's education, employment, housing, or participation in athletics or any other University activity.

It is the policy of the University of Maine to ensure fair and impartial investigation that will protect the rights of the person(s) filing sexual harassment complaints, the person complained against and the University as a whole. A separate brochure and information specific to sexual harassment is available through the Office of Equal Opportunity.

Questions, concerns and complaints about discrimination in any area of the University or about the application of laws and regulations related to equal opportunity and affirmative action should be directed to: Office of Equal Opportunity, 5703 Alumni Hall, Room 318, University of Maine Orono, Maine 04469-5703; (207) 581-1226.

Nonsexist Language

The University of Maine, as an equal opportunity educational institution, is committed to both academic freedom and the fair treatment of all individuals. It therefore discourages the use of sexist language. Language that reinforces sexism can arise from imprecise word choices that may be interpreted as biased, discriminatory, or demeaning even if they are not intended to be. Accordingly, all University communications, whether delivered orally or in writing, shall be free of sexist language.

Each member of the University community is urged to be sensitive to the impact of language and to make a commitment to eliminate sexist language. Guidelines on the use of nonsexist language can be provided by the Women in the Curriculum Program or Public Affairs.

Office of Equal Opportunity

The Office of Equal Opportunity serves UMaine students, faculty, staff, applicants and users of university services. The Office is responsible for: investigating complaints of discrimination and/or harassment based on race, color, religion, sex, sexual orientation, national origin or citizenship status, age, handicap, or veterans status; ensuring accessibility to all programs for persons with disabilities; monitoring and promoting compliance with EEO/AA laws and regulations; consultation and educational presentations on issues related to equal opportunity/affirmative action and/or discriminatory harassment; and advocacy and support for the creation and maintenance of an environment which promotes diversity.

The Director of the Office of Equal Opportunity is responsible to the students and employees of the University for resolving discrimination and discriminatory harassment complaints. The Director will talk with you informally or formally about your concerns. Please feel free to contact the Office of Equal Opportunity, Alumni Hall, University of Maine 04469; (207) 581-1226.

Privacy Rights/Release of Information

In compliance with the Family and Educational Rights and Privacy Act (FERPA) of 1974 (the Buckley Amendment), the University will not release academic information about a student without a signed request from the student. Certain information is considered public or directory information and includes: full name, dates of enrollment, enrollment status, and degrees earned is public. However, students may request through the Office of Student Records that even this normally public information be kept confidential.

The full policy regarding all types of Student records at the University of Maine is available from the Office of Student Affairs.

Information in this catalog covers the year 1997-1998

The University of Maine reserves the right to revise, amend, or change items set forth in the BULLETIN from time to time. Accordingly, readers of this BULLETIN should inquire as to whether any such revisions, amendments or changes have been made since the date of publication. The University of Maine reserves the right to cancel course offerings, so set the minimum and maximum sizes of classes, to change the designated instructors in courses and to make decisions affecting the academic standing of anyone participating in a course or program offered by the University of Maine.

University of Maine
General telephone number, connecting all departments:
(207) 581-1110

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UNIVERSITY OF MAINE

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ACADEMIC CALENDARS

FALL SEMESTER 1997

Classes begin	Tuesday, September 2, 8:00 a.m.
Fall break begins	Friday, October 10, 5:00 p.m.
Classes resume	Wednesday, October 15, 8:00 a.m.
Thanksgiving break begins	Wednesday, November 26, 8:00 a.m.
Classes resume	Monday, December 1, 8:00 a.m.
Classes end	Friday, December 12, 5:00 p.m.
Commencement	Saturday, December 13, 10:30 a.m.
Final exams begin	Monday, December 15, 8:00 a.m.
Final exams end	Friday, December 19, 6:00 p.m.

SPRING SEMESTER 1998

Classes begin	Monday, January 12, 8:00 a.m.
Spring break begins	Friday, February 27, 5:00 p.m.
Classes resume	Monday, March 16, 8:00 a.m.
Classes end	Friday, May 1, 5:00 p.m.
Final exams begin	Monday, May 4, 8:00 a.m.
Final exams end	Friday, May 8, 12:30 p.m.
Commencement	Saturday, May 9, 10:30 a.m.

WINTER SESSION 1997-1998

December 26, 1997-January 10, 1998

MAY TERM-1998

Day schedule	May 11-29
Evening (8-week) schedule	May 11-July 2

SUMMER SESSION-1998

Evening schedule	June 1-July 24	Five-week schedule	June 1-July 2
Three-week schedule	June 15-August 7	Six-week schedule	July 6-August 7
	June 8-June 26		June 1-July 10
	June 15-July 2	Miscellaneous and Special Projects	July 13-August 21
	June 22-July 10	Independent Study, Co-Op Ed, Etc.	May 11-August 21
	June 29-July 17	Holidays (no classes)	May 11-August 21
	July 13-July 31		Memorial Day-Monday, May 25
	July 20-August 7		Independence Day-Friday, July 3

FALL SEMESTER 1998

Classes begin	Monday, August 31, 8:00 a.m.
Labor Day	Monday, September 7 (no classes)
Fall break begins	Friday, October 9, 5:00 p.m.
Classes resume	Wednesday, October 14, 8:00 a.m.
Thanksgiving break begins	Wednesday, November 25, 8:00 a.m.
Classes resume	Monday, November 30, 8:00 a.m.
Classes end	Friday, December 11, 5:00 p.m.
Final exams begin	Monday, December 14, 8:00 a.m.
Final exams end	Friday, December 18, 6:00 p.m.
Commencement	Saturday, December 19, 10:30 a.m.

SPRING SEMESTER 1999

Classes begin	Monday, January 11, 8:00 a.m.
Spring break begins	Friday, February 26, 5:00 p.m.
Classes resume	Monday, March 15, 8:00 a.m.
Classes end	Friday, April 30, 5:00 p.m.
Final exams begin	Monday, May 3, 8:00 a.m.
Final exams end	Friday, May 7, 12:30 p.m.
Commencement	Saturday, May 8, 10:30 a.m.

General Information

MISSION

The University of Maine is the principal research and graduate institution of the State of Maine. It offers a comprehensive program of undergraduate study that is enriched by the resources of its university setting. UMaine is one of seven institutions in the University of Maine System. The University of Maine has responsibility for those educational, research, and public service programs associated with its designation as Maine's land-grant university and sea-grant college. In the spirit of its land-grant heritage, the University is committed to the creation and dissemination of knowledge to improve the lives of its students and Maine citizens in their full social, economic, and cultural diversity.

The University of Maine offers a competitive and intellectually challenging experience for its students in degree programs for the baccalaureate level through the doctorate. Undergraduate education, with a foundation in the liberal arts and sciences that guides the intellectual and ethical development of the University's students, continues to be central to its teaching mission. Professional education in a wide range of disciplines, including programs unique within the State in engineering, the sciences, natural resources, teacher education, business, and human resources, meets student and societal needs. Graduate education, with special emphasis on programs that address the current and future needs of Maine citizens, and in selected areas in which the University of Maine can make significant national and international contributions, supports the research mission of the University, provides advanced training, and educates the next generation of teachers and researchers.

The University recognizes the increasingly global context of economic, social, scientific, technological, and political issues, as well as the evolving multicultural dimensions of contemporary society. Through teaching, basic and applied research, and public service activities, the University of Maine contributes to the economic, social and cultural life of Maine citizens. With programs that are national and international in scope, the University is also a major resource for Maine in the increasingly interdependent world community.

The University is committed to developing and sustaining a multicultural and pluralistic educational community that encourages the full participation of all of its members. An attractive campus and quality cultural, social, recreational, and athletic programs are offered to complement and extend the learning environment.

HISTORY

The University was originally established as the State College of Agriculture and the Mechanic Arts under the provisions of the Morrill Act approved by President Abraham Lincoln in 1862. The next year, the State of Maine accepted the conditions of the act and in 1865 created a corporation to administer the affairs of the college. The original name was changed to the University of Maine in 1897.

The institution opened on September 21, 1868, with 12 students and two faculty members. Dr. Merritt Caldwell Fernald was appointed acting president. By 1871, curricula had been developed in agriculture, civil engineering, mechanical engineering, and electives. From these curricula the Colleges of Agriculture, Technology, and Arts and Sciences gradually developed. Women have been admitted since 1872. The School of Education was established in 1930 and became the College of Education in 1958. The University operated a college of law from 1898 to 1920.

Schools of Business Administration, Forestry, Home Economics, and Nursing were established in 1958. The School of Business Administration became the College of Business Administration in 1965. Schools of Engineering Technology and

Performing Arts were established in 1975. The College of Forest Resources was established in 1982. In 1989, the College of Arts and Sciences split to form three Colleges; the College of Social and Behavioral Sciences, the College of Arts and Humanities, and the College of Sciences. At the same time, some departments from the College of Engineering and Science and the College of Life Sciences and Agriculture merged with the College of Sciences, resulting in College name changes to the College of Engineering and the College of Applied Sciences and Agriculture.

In 1993, the College of Forest Resources merged with the College of Applied Sciences and Agriculture to form the College of Natural Resources, Forestry and Agriculture.

As a result of academic restructuring, approved by the Board of Trustees in July 1996, five new colleges were created, effective 7/1/97: College of Business, Public Policy and Health; College of Education and Human Development; College of Engineering; College of Liberal Arts and Sciences; and College of Natural Sciences, Forestry, and Agriculture.

The new structure of the Division of Academic Affairs will provide innovation and enhanced educational opportunities for students. The five new colleges have been designed to focus the University of Maine's strengths, create a shared commitment to the liberal arts foundation of our curriculum, highlight opportunities for Bachelor of Arts students, promote areas of excellence in graduate education and research, strengthen the mandate for research, and increase our institutional commitment for diversity and multicultural approaches. Each college has a core of undergraduate and graduate majors that characterizes the nature of the college and acknowledges its program strengths.

The Maine Agricultural Experiment Station was established as a division of the University by act of the Legislature of 1887, as a result of the passage by Congress of the Hatch Act. It succeeded the Maine Fertilizer Control and Agriculture Experiment Station, which had been established in 1885.

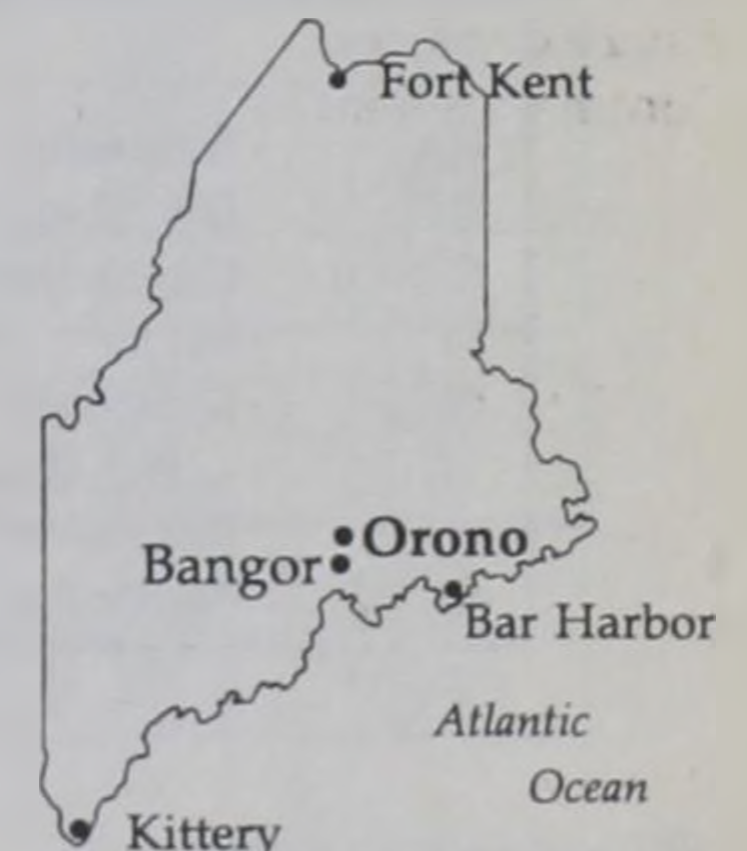
In 1980, the University of Maine was accorded Sea Grant College status by the Federal Government under provisions of the National Sea Grant College Program Act.

Graduate instruction has been offered by various departments for many years. The first master's degree was conferred in 1881, and the first doctor's degree in 1960. Since 1923, all graduate work has been consolidated within the Graduate School.

Beginning in 1895, the Summer Session has usually been held each year. Summer Sessions of varying lengths, as well as May Term, are designed for teachers, school administrators and for regular college students who desire to accelerate their work. In addition, effective January 1997, a Winter Session will be held annually.

LOCATION

The University of Maine is located in central Maine about halfway between Kittery, the southernmost town in the state, and Fort Kent on the northern boundary. It is on U.S. Route 2A approximately eight miles from Bangor, the third largest city in Maine and approximately a one hour drive to Bar Harbor and Acadia National Park. The University campus is a mile from the business section of Orono, an attractive town of about 10,000 people, and borders the Stillwater River, a branch of the Penobscot. Take I-95 North to exit 50 or 51 and follow signs to campus.



University of Maine Academic Programs

College of Business, Public Policy & Health	B A	B S	C	M	G
Business Administration		X		X	X
Accounting			X		
Finance			X		
Management			X		
Marketing			X		
Nursing		X			X
Public Administration					X
Criminal Justice Admin.			X		
Local Government Admin.			X		
Public Management	X			X	
Public Relations			X		
Social Work	X				X

College of Education & Human Development	B A	B S	C	M	G
Child Development & Family Relations		X		X	X
Early Childhood Environments			X		
Individual and Family Studies			X		
Disability Studies			X		
Education					X
Elementary Education		X		X	X
Art			X		
Canadian Studies			X		
Developmental Disabilities			X		
English			X		
French			X		
Honors			X		
Human Development			X		
International Affairs			X		
Mathematics			X		
Music			X		
Natural Science			X		
Peace Studies			X		
Philosophy			X		
Psychology			X		
Social Studies			X		
Spanish			X		
Women's Studies			X		
Kinesiology and Physical Education		X			X
Athletic Training			X		
Developmental Disabilities			X		
Health Education			X		
Liberal Arts			X		
Management/Administration			X		
Science			X		
Secondary Education		X		X	X
English			X		
Foreign Languages			X		
Mathematics			X		
Science			X		
Social Studies			X		

Legend	
BA	Bachelor of Arts
BS	Bachelor of Science
C	Concentration
M	Minor
G	Graduate Program, for details refer to the Graduate Catalog.
●	Bachelor of Music
⊕	Bachelor of University Studies

College of Engineering	B A	B S	C	M	G
Chemical Engineering		X			X
Process Engineering				X	
Pulp and Paper Technology		X		X	X
Civil Engineering		X			X
Environmental Quality				X	
Structures				X	
Water Resources				X	
Computer Engineering		X			X
Construction Management		X		X	
Technology					
Electrical Engineering		X			X
Communications and Signal Proc.			X		
Computer Hardware			X		
Digital Systems				X	
Electronic Instrumentation				X	
Electronics			X		
Power				X	X
Power and Industrial Control			X		
Sensors			X		
Electrical Engineering Technology		X			
Engineering Physics		X			X
Mechanical Engineering		X			X
Fluid Mechanics				X	
Solid Mechanics				X	
Thermodynamics				X	
Mechanical Engineering Technology		X			
Naval Science				X	
Spatial Information Engineering		X			X

College of Liberal Arts & Sciences	B A	B S	C	M	G
Anthropology	X			X	
Art	X				X
Art Education			X		
Art History			X	X	
Studio Art			X	X	
Astronomy				X	X
Canadian Studies				X	X
Chemistry	X	X		X	X
Classical Studies				X	
Communication	X			X	X
Communication Disorders	X				X
Computer Science	X	X		X	X
Dance			X	X	
Economics	X			X	X
English	X				X
Creative Writing			X		
Expository Writing			X		
Professional Writing			X		
Foreign Languages				X	X
Franco-American Studies				X	
French	X			X	X
Geography			X		
German	X			X	
History	X			X	X

University of Maine Academic Programs

College of Liberal Arts & Sciences continued	B A	B S	C	M	G
International Affairs -				X	
in Anthropology	X				
in Economics	X				
in Foreign Languages	X				
French			X		
German			X		
Russian			X		
Spanish			X		
in History	X				
in Political Science	X				
Journalism	X				
Latin	X			X	
Latin American Studies				X	
Legal Studies			X		
Linguistics				X	
Marxist and Socialist Studies				X	
Mass Communication	X				X
Mathematics	X			X	X
Medieval and Renaissance Studies				X	
Modern Languages	X				X
Modern Languages & Classics				X	
Multimedia				X	
Music	X			X	X
Music Education	●				
Performance	●				
Philosophy	X			X	
Physics	X	X		X	X
Political Science	X				
Psychology	X			X	X
Religious Studies				X	
Rhetoric and Writing				X	
Romance Languages	X				X
Russian				X	
Sociology	X			X	
Spanish	X			X	
Theatre	X			X	X
Acting			X		
Dance			X		
Design & Technical Production			X		
Directing			X		
Literature, History & Criticism			X		
Women's Studies				X	

College of Natural Sciences, Forestry & Agriculture	B A	B S	C	M	G
Animal and Veterinary Sciences		X		X	X
Pre-Veterinary			X		
Aquaculture		X			
Aquaculture Science			X		
Aquaculture Technology			X		
Biochemistry	X	X		X	X
Biology	X	X		X	X
Pre-medical, pre-dental			X		
Secondary Education			X		
Bio-Resource Engineering		X			X
Agricultural Engineering			X		
Aquacultural Engineering			X		
Environmental Sciences			X		
Food Engineering			X		

College of Natural Sciences, Forestry & Agriculture continued	B A	B S	C	M	G
Bio-Resource Engineering Technology		X			
Aquaculture			X		X
Environmental Sciences			X		X
Food Processing			X		X
Forestry			X		X
Sustainable Agriculture			X		X
Botany	X	X			
Plant Biology (for non-majors)				X	X
Clinical Laboratory Sciences	X				
Cytotechnology			X		
Medical Technology			X		
Food Science and Human Nutrition		X			X
Food Management			X		
Food Science			X	X	
Human Nutrition			X	X	
Forest Ecosystem Science		X			
Forest Engineering		X			X
Forestry		X			X
Geological Sciences	X	X		X	X
Landscape Horticulture		X	X	X	
Landscape Horticulture-Business			X		
Landscape Horticulture-Science			X		
Marine Resources				X	
Marine Science		X			X
Marine Biology			X		
Physical Science			X		
Microbiology	X	X		X	X
Molecular and Cellular Biology		X		X	X
Natural Resources		X		X	X
Entomology			X		
Environmental Sciences			X		
Individualized Concentration			X		
Land Use Planning			X		
Marine Resources and Sciences			X		
Natural History and Ecology			X		
Resource & Environmental Policy			X		
Soil and Water Conservation			X		
Waste Management			X		
Parks, Recreation and Tourism		X		X	X
Interpretation			X		
Management			X		
Tourism			X		
Plant Science				X	X
Resource Mgmt & Environ. Policy		X			
Agribusiness Admin.			X		
Agribusiness Management			X		
Agribusiness & Resource Eco.				X	
Environmental Mgmt & Policy			X		
Soil Science				X	
Sustainable Agriculture		X		X	X
Wildlife Ecology		X			X
Wood Science and Technology		X			X
Forest Products				X	
Zoology	X	X		X	X

Division of Lifelong Learning	B A	B S	C	M	G
Peace Studies			X		
University Studies	❖				

ACCREDITATION

The University of Maine 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.

In addition, many of the University of Maine's professional programs and departments are accredited by national professional associations, including:

Accreditation Board of Engineering and Technology, Inc.
American Assembly of Collegiate Schools of Business

American Chemical Society
American Dietetic Association
American Psychological Association
American Speech-Language-Hearing Association
Council on Social Work Education
National Association of Schools of Music
National Association of Schools of Public Affairs and Administration
National Council for Accreditation of Teacher Education
National League for Nursing
Society of American Foresters
Society of Wood Science and Technology

ENVIRONMENTAL PROGRAMS AT THE UNIVERSITY OF MAINE

As Maine's Land Grant and Sea Grant University, the University of Maine is committed to teaching, research, and service to understand, maintain, and improve the quality of the environment. There are a number of undergraduate degree programs that offer students an opportunity to pursue studies leading to careers in the environmental sciences.

Program	Contact Person	College	Page #
Biology Botany	Christopher Campbell	Natural Sciences, Forestry, and Agriculture	82
Bio-Resource Engineering	Tom Christiansen	Natural Sciences, Forestry, and Agriculture	87
Civil and Environmental Engineering		Engineering	101
Forest Ecosystem Science	Richard Jagels, Chair	Natural Sciences, Forestry, and Agriculture	127
Forestry	David Field, Chair	Natural Sciences, Forestry, and Agriculture	128
Geological Sciences	Stephen Norton, Chair	Natural Sciences, Forestry, and Agriculture	132
Natural Resources - This is a broad-based, interdisciplinary program encompassing many environmental studies concentrations	Mark W. Anderson, Coordinator	Natural Sciences, Forestry, and Agriculture	150
Resource Management and Environmental Policy	Stephen Reiling, Chair	Natural Sciences, Forestry, and Agriculture	167
Sustainable Agriculture	Mary Wiedenhoeft, Coordinator	Natural Sciences, Forestry, and Agriculture	73
Wildlife Ecology	James Gilbert, Chair	Natural Sciences, Forestry, and Agriculture	174
Zoology	Malcolm Shick	Natural Sciences, Forestry, and Agriculture	82

FACILITIES, PROGRAMS AND RESOURCES

UNIVERSITY OF MAINE ART MUSEUM

Established in 1946 as the University of Maine Art Collection, the Museum of Art offers to the public an ambitious program of over twenty exhibitions a year in five galleries, as well as access to nearly 30% of the over 5000 works of art in the permanent collection, including paintings, watercolors, prints, drawings, photographs, sculptures, and other media, in offices and other public spaces on campus.

The Museum of Art's permanent collection includes an extensive collection of 19th and 20th Century European and American prints by artists such as Picasso, Warhol, Goya, Kollwitz, Homer, and Modern American paintings by George Inness, Waldo Peirce, Andrew Wyeth and others. The Museum exhibition program features works of locally, nationally and internationally known artists. The Museum hosts annually, both student and faculty exhibitions, and the biannual Jack Walas Juried Photography Exhibit. Thematic exhibits are also curated from the permanent collection.

Located in Carnegie Hall, a 1904 architectural showpiece of the Orono campus, the Museum shares its home with the offices and studios of the Department of Art. While the Museum's primary exhibition space consists of the Carnegie and 1938 Galleries in Carnegie Hall, artwork is also displayed in Hauck Auditorium Gallery, Graphics Gallery, and the Hole in the Wall Gallery, all located in the Memorial Union.

Museum hours are 9:00 a.m. to 4:30 p.m., Monday through Saturday. In the handicapped accessible Memorial Union, Hauck Auditorium and Graphics Galleries' hours are 7:00 a.m. to 11:00 p.m., and the Hole in the Wall Gallery hours are 8:00 a.m. to 5:00 p.m. daily. For more information, call (207) 581-3255.

CANADIAN-AMERICAN CENTER

The Canadian-American Center is one of the leading institutions for the study of Canada in the United States. Designated a National Resource Center on Canada by the United States Department of Education in 1979, the Center coordinates an extensive program of undergraduate and graduate education, contributes to the continued development of Fogler Library as a major research library on Canada, promotes cross-border faculty, and student exchanges; and encourages cross-border research projects in the humanities, social sciences, natural sciences, and professions. The Center also directs outreach programs to state, regional, and national audiences. These include Canada Week, the Atlantic Provinces Teachers Institute and the Atlantic Canada Faculty Institute.

CENTER FOR COMMUNITY INCLUSION, MAINE'S UNIVERSITY AFFILIATED PROGRAM

The Center for Community Inclusion was established in 1992 as Maine's University Affiliated Program (UAP). UAPs are a national network of federally funded programs established to provide interdisciplinary education, community/outreach education, applied research and policy analysis, technical assistance, and dissemination in the field of developmental disabilities. To meet its statewide mission, the Center has affiliations with a wide range of state and community agencies, advocacy groups, and consumer, parent and professional organizations. On campus, the Center coordinates the undergraduate and graduate Interdisciplinary Concentration in Disability Studies which is affiliated with fourteen academic departments and units and Eastern Maine Medical Center in Bangor. Several education, research and service projects, which focus on improved quality of life for persons with developmental disabilities,

their families, and professionals who support them, are administered by the Center. Students who elect the Interdisciplinary Concentration in Developmental Disabilities may become involved in these projects through practicum and internship experiences. For a description of the Interdisciplinary Concentration in Disability Studies see Interdisciplinary Course Concentrations elsewhere in this catalog.

COMPUTING AND DATA PROCESSING SERVICES (CAPS)

CAPS is an agency of the University of Maine System. CAPS provides networking and computer services to the entire University System community. These services support the diverse instructional, research and public service missions of the System as well as its administrative needs. CAPS headquarters is on the Orono campus, in a wing of Neville Hall.

Through the collaboration of UMaine and CAPS, students can obtain course schedules and grades and pay bills via the Interactive Voice Response System (581-MAIN). Campus or home computers can be used to request transcripts, course and grade information, and to audit students' progress toward their degrees.

The statewide data network, run by CAPS, supports Internet services for all students, faculty and staff at UMaine and the other System institutions. Among these services are electronic mail, USENET news, and the World-Wide Web. CAPS distributes Windows and MacIntosh software to take advantage of these services and also provides access through its central computer systems. The central systems host personal World-Wide Web homepages as well.

CAPS works with the System institutions to install and maintain on-campus networks. In addition, CAPS maintains remote dial-up access via modem pools around the state. Home computers and modems can be used with our Windows/MacIntosh software to connect to the Internet and the central CAPS computers. For more information see the CAPS World-Wide Web site: <http://www.maine.edu/CAPSgen/CAPS1/html>

CAPS consultants are available during normal office hours to assist students, faculty and staff with computing, statistics or networking problems. Call (207) 581-3524 or E-Mail support@maine.maine.edu. Visit the CAPS User Services World-Wide Web page at: <http://maine.maine.edu/~usrsv/>

CONLEY SPEECH AND HEARING CENTER

Students with speech, language, or hearing disorders are encouraged to use the assessment and remedial services provided by the **Conley Speech and Hearing Center** in the Department of Communication Disorders. Any student who is concerned about differences in his or her speech, language, or hearing should contact the Center for an appointment. There is no charge for these services for full-time University students. The Conley Center is located in North Stevens Hall, Room L5, (Basement). Please call for an appointment at (207) 581-2006.

COOPERATIVE EXTENSION

Cooperative Extension extends the resources of the University to the people of Maine wherever they live, an important responsibility of all land-grant colleges and universities. At work in Orono and in 16 county offices, more than 75 Extension faculty members and roughly 15,000 volunteers conduct educational programs to help Maine citizens solve problems at home, at work, on farms, and in communities. In addition, Extension coordinates the state's 4-H program, which involves more than 30,000 Maine youth in

educational clubs, camps, and in-school activities. Extension programs are based on research performed at the University of Maine and other colleges and universities across the nation. Besides county educators, volunteers, and support staff, Extension personnel include state and area specialists, administrators, professionals, and paraprofessionals. County Extension Associations sponsor Extension programs in each county. Maine's Cooperative Extension is part of a nationwide Extension system, supported by a three-way partnership involving the U.S. Department of Agriculture, the land-grant colleges and universities, and county governments.

CULTURAL AFFAIRS AND LIBRARIES

The Raymond H. Fogler Library

The Raymond H. Fogler Library is the largest library in the state of Maine. It contains an excellent collection of general materials to support undergraduate studies, as well as rich and varied research collections. Fogler Library houses approximately 880,000 volumes, 1.3 million microforms, almost 2 million government documents, and maintains about 6,700 periodical subscriptions and standing orders. The Library's online information system, URSUS, provides convenient access to the holdings of all libraries in the University of Maine System. Students and faculty also have access to a wide variety of local and remote electronic information databases. The Library is a U.S. Patent and Trademarks Depository Library and the archive for the William S. Cohen papers. Other specialized collections include Canadiana, Maine-related materials, sound recordings and music scores, and historical manuscripts and maps.

Maine Center for the Arts

Hudson Museum

The Hudson Museum is located in the Maine Center for the Arts on the UMaine campus. Hudson Museum exhibits and programs explore anthropology as the study of humans and their reliance on culture. The museum's collections and exhibits function as educational and research aids for University faculty, students and the general public.

The permanent collections include one of the finest assemblages of Prehispanic Mexican and Central American materials in the United States. The collections also include materials from the Native American cultures of the Northwest Coast, the Plains, the Southwest, local Penobscot, South America and the Arctic, as well as artifacts from Oceania, Asia and Africa. The Hudson Museum offers permanent, temporary and outreach exhibits, teacher workshops, lectures and children's programs. The Hudson Museum Shop sells high-quality native crafts and reproductions. Museum hours are Tuesday - Friday, 9 a.m. - 4 p.m.; Saturdays and Sundays 11 a.m. - 4 p.m. The Museum is closed Mondays and holidays. Admission is free, but donations are encouraged. There is a modest charge for group tours. For more information call (207) 581-1901.

Hutchins Concert Hall

The Maine Center for the Arts, dedicated in September of 1986, includes the 1,629-seat Hutchins Concert Hall and the Bodwell Area.

The Center presents a full spectrum of performances ranging from classical music to bluegrass, from avant-garde dance to Broadway musicals, jazz to folk and ethnic music, comedy to family entertainment, country to rock and much more. In addition to the regular season of events, the Concert Hall is also available for rent by major promoters bringing other types of performers to the University of Maine.

Past performances have featured Isaac Stern and Yo-Yo Ma, Leipzig Gewandhaus Orchestra, Arlo Guthrie, Jean Redpath, The Royal Winnipeg Ballet, The Peking Acrobats, Marcel Marceau, Leontyne Price, Rudolf Nureyev, Johnny Cash and the June Carter Family, Johnny Winter, Greg Allman, The Modern Jazz Quartet, Peter,

Paul and Mary, Jerry Seinfeld, Dana Carvey, Dennis Miller, Kris Kristofferson, Lee Greenwood, Bob Dylan, Dave Matthews, Broadway Musical tours and many others.

Students are encouraged to experience a wide variety of performances to enhance their overall education at the University of Maine. The comprehensive fee makes it possible for University of Maine students to attend some performances at no cost. Additionally a "student RUSH ticket" may be purchased for \$5.00 on the day of performance and is subject to availability. Students can benefit from Master Classes which are often offered in conjunction with performances by visiting world-class artists in many disciplines. The Maine Center for the Arts is the cultural resource center in Northern Maine.

Tickets for all events are available at the Box Office, located in the lobby of the Maine Center for the Arts. The Box Office is open weekdays from 9:00 a.m. to 4:00 p.m. and for one and one-half hours before each performance. The phone number for information is (207) 581-1755.

DEPARTMENT OF INDUSTRIAL COOPERATION

The University has skills and facilities that are useful to individuals, private industry and government agencies. The Department of Industrial Cooperation was established in 1946 to coordinate the activity in a way that does not compromise the basic commitment of the University to teaching, research and public service. All University costs, including the operation of the Department, are paid by clients using the service.

DEPARTMENT OF PUBLIC AFFAIRS

The Public Affairs Department serves as UMaine's official coordinator of campus and external communications, providing new media, radio-television production, photography, and graphic design services as well as other resources intended to aid the campus community and public at large. The department works with the news media to provide outreach and promotion of University research, services, news and information. Radio and television specialists create professional-quality audio and video productions. Award-winning graphic artists provide high-quality design services for all forms of media and for all types of projects. Other services include the "Maine Perspective", a bi-weekly publication of University news, events and commentary; the Speakers Bureau, which maintains a "specialists list" with names and other information about University faculty and staff with expertise in many diverse fields; photographic services; and the University of Maine Visitors' Center, which provides tours and information services. For more information, call (207) 581-3743.

FRANCO-AMERICAN CENTRE

The Franco-American Centre is an advocate of the Franco American Fact at the University of Maine and the region. It serves as a bridge between the Franco American community and the University. The Centre stimulates the development of academic and program offerings relevant to the history and life experience of this ethnic group in Maine and New England. In addition, the Centre promotes bilingual, bicultural and multicultural models of delivery of services; work experiences for university students; maintains a readily available library of materials and information, and has established a network of resources in Maine and North America to assist students, faculty, administrators, and agencies with their research and programming needs relative to Franco-Americans and other Maine cultural communities. The Centre also publishes a bilingual sociocultural journal, *Le Forum*.

Le Forum is a quarterly bilingual (French and English) journal edited and published through the cooperative efforts of the Franco-American Centre, students involved with the student group, F.A.R.O.G., students from the graduate group, S.A.S.A.F., and the

Maine and regional Franco-American community. Dealing primarily with Franco-American facts and resources in Maine and the region, *Le Forum* publishes articles, essays, poems, and short stories of a diverse ethnic and cultural nature, as well as four to five specifically focused UMaine and regional pages, for which materials are solicited. The journal also encloses a refereed literary magazine, *RAFALE*. For further information please contact Yvon A. Labbe or James Bishop at the Franco-American Centre, University of Maine, 164 College Avenue, Orono, Maine 04473. Telephone: (207) 581-3764.

THE UNIVERSITY HONORS PROGRAM

General

The University of Maine offers its Honors Program to all exceptionally talented students who are interested in cross- and interdisciplinary studies. The Program is based on the belief that genuine excellence in college-level studies means broad competence in areas outside a major field of specialization as well as excellence within it; to that end, Honors courses involve students and faculty from all disciplines and fields at UMaine in seminars and tutorials. Honors course work allows the student both a range and a flexibility not available in any academic major. The double emphasis on learning which both broadens and deepens has been the foundation for the building of courses in the Program: to expand students' perspectives by exploring areas of thought not closely related to their major fields, and to allow them to work in their majors, during the junior and senior years, with greater depth than would be possible within a conventional course pattern. Honors study begins with interdisciplinary broadness and culminates in a focused, in-depth project in the major field.

Administrative Structure

The Honors Program is university-wide and is administered by a director. The policy-advising body for the program is the Honors Council, consisting of the Honors Director, chair, the secretaries of the college honors committees, three at-large faculty members, coordinator of the First and Second year Courses, and four honors students. Each of UMaine's colleges has a college honors committee chaired by a college honors secretary; these currently are:
BPPH—Professor Carol Gilmore, Donald P. Corbett Business Building
EDHD—Professor John Maddaus, Shibles Hall
EGR—Professor Kenneth Mumme, Jenness Hall
LAS—Professor Cathleen Bauschatz, Little Hall
NSFA—Professor Al Bushway, Holmes Hall

Students with questions about the program should see the Honors Secretary of their college and consult the Honors listing within their college's entry in this catalog.

Admission

Entering first year students are invited to join the Honors Program on the basis of their admission records and on the recommendation of guidance counselors. To be eligible for the Program, students should have a minimum 3.0 grade point average, score well on the SAT, and show curiosity, initiative, and intellectual flexibility in academic work. Students may also enter the Program on request by applying to the director. Second-semester first year students and first-semester sophomores are invited into the Program through faculty recommendations based on academic performance in a particular course at UMaine, and by the director on the basis of cumulative grade point averages. Transfer students wishing to join Honors should consult with the director.

Courses and Requirements

In the first year, students ordinarily take HON 101 and HON 102, Honors Seminar, which consists of readings in basic texts of western civilization from early creation myths to contemporary issues. This course emphasizes reading, writing and discussion of ideas; each section is limited to no more than 12 students. During the sophomore year, students may take HON 201, The Sciences and Western Culture I, and HON 202, The Sciences and Western Culture

II, which are structured much like HON 101 and 102 but which allow for sustained and in-depth study of major figures in Western thought. In the junior year, either HON 301, HON 302, HON 303 or HON 304 Group Tutorial, is required; each group of students does substantial reading in a specific topic or theme and meets weekly for discussion with a tutor. At the junior level, students may also take HON 397, Honors Specialized Study, an independent reading course in the major field, to help in selecting a thesis topic and advisor. In the senior year, HON 498, Honors Directed Study, and HON 499, Honors Thesis, are required, culminating in a senior thesis or project, and a final oral examination.

To graduate with an Honors degree, a student must complete a minimum of five HON courses. A sequence of courses which includes HON 101 and 102, as well as a three-hundred level tutorial, is strongly suggested. Students should consult with the college Honors secretaries and with the Director of the Honors program.

To remain in good standing in Honors, students must maintain a minimum 3.0 grade point average in all their course work at UMaine.

Degree

The level of honors awarded—no Honors, Honors, High Honors, or Highest Honors—depends on the quality of the senior thesis or project and the performance on the senior oral examination. Honors designations are recommended by the senior examining committee to the college Honors secretary and Honors Program Director. The designation appears on both the student's degree and on the transcript.

Honors Courses and College Requirements

All honors courses carry degree credit and satisfy basic area requirements in each of the colleges. In some colleges, HON 101 and HON 102 may substitute for the first year composition requirement, ENG 101. At the junior and senior levels, some honors courses may count towards the major. See the honors entry under the appropriate college for further information. Honors courses also contribute to the General Education requirements.

Honors courses and descriptions can be found in the Course Descriptions section of this catalog. Refer to index for page number.

Organization of Honors Students

All students in the Honors Program are members of OHS, a student organization which publishes a newsletter and sponsors a variety of activities throughout the academic year.

For Further Information

All questions about the University Honors Program should be addressed to Director, University Honors Program, 5777 Thompson Honors Center, Orono, ME 04469-5777.

INSTITUTE FOR QUATERNARY STUDIES

The Institute for Quaternary Studies is an interdisciplinary research unit with a focus on the Quaternary Period, a time of numerous glacial/interglacial cycles leading up to the present. Research focuses on the timing, causes, and mechanisms of natural climate change, and on the effects of former climate changes on the physical, biological, chemical, social, and economic conditions of the past. Such studies provide important perspectives on Global Changes of the present and the future. The Institute includes faculty with joint appointments in the departments of Anthropology, Biological Sciences, Computer Sciences, Geological Sciences, History, and Marine Sciences. Research projects currently involve the United States, Canada, South America, Antarctica, Greenland, India, Europe, Siberia, and many regions of the world's oceans. Collaborations and exchange programs are in effect with faculties at the University of Oslo, Norway and the Universities of Stockholm and Lund, Sweden, among others.

INSTRUCTIONAL TECHNOLOGIES (IT)

IT provides high quality technological resources for use in the teaching/learning environment, including telecommunications, products, services, support and training to all members of the academic community. See list of services to follow.

Computing Related Services

Help Center, Room 17 Shibles Hall Help center consultants provide walk-in and telephone assistance for Macintosh and Windows/Intel software support, remote access. First Class and Internet support, disk recovery, virus utilities, and file conversion. Call (207) 581-2506, or e-mail ITHelp@maine.maine.edu.

Public Computer Clusters Mac and Windows/Intel microcomputers are available at the Memorial Union and Fogler Library public clusters. Additional computers are available in the classroom clusters located in Barrows and Lengyel Halls (Macintosh computers), and Donald P. Corbett Business Building (Windows/Intel computers). All clusters provide a wide variety of software and Internet applications, including First Class, Netscape, CAPS, and URSUS (the Library system).

Computer Connection, Room 28 Shibles Hall The Computer Connection is a store for University of Maine students, faculty, staff and departments. Our customers can purchase personal computers, printers, computer peripherals, memory, supplies and software at discounted educational prices. The store sells Apple, Dell, Acer, Texas Instruments, and IBM systems as well as Apple, Epson, Canon, Tektronics and Hewlett-Packard printers. The Computer Connection can also obtain other brands or "special-order" computer related items from our suppliers often within two days. Phone (207) 581-2580 for a general catalog or information about financing and renting computers. View our Web Page at <http://ccweb.umecit.maine.edu/> or visit our showroom at 28 Shibles Hall (in the basement). Hours: Mon. 10:00 a.m. - 4:30 p.m.; Tues-Fri., 8:30 a.m. - 4:30 p.m.

Computer Repair, Room 17 Shibles Hall Services all university-owned computer equipment, and warranty service for Apple, IBM, Dell Optiplex computers, and most Hewlett-Packard printers purchased at the Computer Connection. For more information call (207) 581-3282.

Network Services If you need assistance setting up a network, running Novell software, administering software access or gaining access to a larger range of software, call our network specialists at (208) 581-1725 or (207) 581-1592 for a consultation appointment.

UMaineNet is a program for students living in all UMaine residence facilities (with the exception of University Park). UMaineNet provides network services which include Internet access, telnet capabilities, a FirstClass account (the University's computer conference system), as well as access to various software packages for both Mac and Windows/Intel. For more information call (207) 581-1607.

First Class Offers personal e-mail (including Internet mail services); public and private electronic conferencing and discussion groups; online chatting with other users; as well as Netnews and ListServ subscription services. Using your account, you can participate in discussions on topics ranging from multiculturalism to favorite movies, keep informed about campus events, as well as obtain course information, syllabi, and assignments. For more information call (207) 581-2506.

Workshops Two-hour workshops for Mac and Windows software applications are available by registration. Schedules are posted in the public clusters and in the *Maine Perspective*. Phone (207) 581-1638 for more information.

Telecommunications Related Services

Phone Service Each residence hall room is equipped with a working telephone jack. However, students must provide their own touch tone phone. In addition, students may sign for long distance service through the AT&T ACUS (AT&T College and University Service) program which offers low calling rates comparable to direct

rates received at home. Students arriving on campus in the Fall will receive a package explaining this service.

Meridian Mail: Students living in the resident halls will also have access to a Meridian Mailbox. This mailbox is like having an answering machine attached to your telephone. Meridian Mail provides the capability to send and receive confidential messages 24 hours a day from anywhere on or off campus.

Fax Service: Students may send and receive fax messages at the Telecom Building which is attached to Neville Hall, 2nd Floor. This service is available M-F, 8:00 a.m. - 4:30 p.m. Call (207) 581-1600 for fax rates.

Video & Audio Visual Related Services

Video Services, Room 220 Alumni Hall: Provides satellite programming to any of the 20 classrooms which have been added to the campus cable television network. These classrooms also receive selected Education Network of Maine and Department of Education feeds and many cable channels as well. We also provide videotape duplication services with broadcast quality equipment for video tape recording and dubbing in VHS, S-VHS and 3/4" U-matic SP formats. For more information, please call (207) 581-2577.

Audio Visual Services, Room 123 Lord Hall: Provides A.V. equipment (color TV monitors, video tape players, computer/video projection devices, overhead projectors, slide projectors and public address systems, etc.) for classroom and department use on the Orono campus as well as providing support for the hi-tech classroom in the Donald P. Corbett Business Building. For a complete list of equipment that can be scheduled, please call (207) 581-2500.

IRA C. DARLING CENTER FOR RESEARCH, TEACHING AND SERVICE

The Darling Marine Center is the marine laboratory of the seven campus University of Maine System and functions as a research and teaching facility for University faculty, students, and visiting investigators from throughout the world. The Center is located on the oceanic Gulf of Maine. Coastal habitats include rocky shores, marsh, beaches, and mud flats. Nearby subtidal environments include seagrass beds, soft bottoms of all grain size types, and rocky, hard bottoms. Macrofauna indicative of Virginian to sub-Boreal regions are present. The subarctic to cold temperature environment is seasonally variable, with temperature ranging between 2 and 15 degrees C in the open ocean and between -2 and 20 degrees C in the upper reaches of estuaries. Salinity within the estuary ranges from 28 to 32 0/00. Facilities include a 60-seat classroom building, a dining hall and kitchen, conference rooms, mechanical and woodworking shops, dormitory and cottage housing, and an excellent marine library containing over 5700 volumes and 190 journal subscriptions. The new 12,000 sq. ft. Flowing Seawater Laboratory serves as a multifunctional facility for culturing and experimenting with a wide variety of living marine organisms under either ambient and controlled temperatures (10 - 20 degrees C). This facility also contains walk-in environmental rooms, an algal culture room, and Electron Microscopy and Histology Lab, as well as dry office and lab space. An adjacent, newly constructed building provides additional office, lab, and classroom space. A shoreside Dive and Field Staging building contains showers, locker rooms, a scuba cascade system, an electronics lab and storage space. A fleet of small boats plus a 34' lobster-style boat provide access to the water.

Ira C. Darling Center Library

The library at the Ira C. Darling Center in Walpole houses a specialized collection of books, journals, and reprints on marine studies.

LABORATORY FOR SURFACE SCIENCE AND TECHNOLOGY (LASST)

The Laboratory for Surface Science and Technology (LASST) is one of the University's organized research units. LASST coordinates research in a range of fundamental and applied areas relating to the properties of surfaces and materials and their application to areas

such as microsensors, catalysis, and thin film growth. Extensive laboratory facilities have been set up in LASST to support the research needs of University of Maine faculty as well as state and regional industries. LASST provides an opportunity for graduate and undergraduate students to acquire training and experience in a high technology program. LASST faculty also offer specialized courses in surface and materials science. Major research areas include surface crystallography, microwave acoustics, surface phase transitions, adsorption and catalysis, analytical methods, adhesion, atomic force microscopy, biosensors, gas sensors and fluid sensors.

LOBSTER INSTITUTE

A program of research and education conducted in cooperation with the lobster industry, the Institute generates information about the Maine lobster which is used to help conserve and enhance the resource and ensure the continuance of the lobster industry in Maine and adjacent areas. The Institute works with representatives of the industry to identify practical problems and generate solutions to them.

MAINE AGRICULTURAL AND FOREST EXPERIMENT STATION

For more than one hundred and ten years, the Maine Agricultural and Forest Experiment Station has been undertaking research for Maine and its people. Originally devoted to research for Maine's farm community, the Experiment Station is now Maine's most important center for research in agriculture, forest resources, aquaculture, and rural economic development. The Station maintains its offices and principal research laboratories at Orono. Additional research facilities include Aroostook Farm at Presque Isle, Highmoor Farm in Monmouth, Blueberry Hill Farm in Jonesboro, Witter Animal Science Center at Orono, Rogers Farm in Old Town, the Demeritt Forest at Orono and the Penobscot Experimental Forest in Bradley. More than one hundred scientists participate in research programs designed to apply the techniques of modern science to the needs of Maine. This commitment to relevance is seen in both applied and basic programs in agriculture, forestry, wildlife, human nutrition, food technology, fisheries and aquaculture, community economic development, and plant and animal biology. Two public advisory committees, the University of Maine Agricultural Advisory Committee and the Forest Resources Advisory Committee, as well as several commodity-based groups, provide advice in the development and oversight of the research programs. Part of a national system of state and federal cooperative research organizations located at land grant universities, Maine's is the largest experiment station in New England in terms of total research funding from all sources.

MAINE FOLKLIFE CENTER

The Maine Folklife Center, affiliated with the Department of Anthropology, is located in South Stevens Hall. The Center serves as a comprehensive public folklore agency with a mission to document, study, interpret and present the folklore and folklife of Maine and the Maritime Provinces through exhibitions, conferences, publications, and research. It houses The Northeast Archives of Folklore and Oral History, a major audiovisual and manuscript collection of regional culture. It also sponsors a wide range of public programs and publishes both the scholarly monograph series *Northeast Folklore* and a semiannual newsletter. The Center is open daily throughout the year and welcomes research and general inquiries from faculty, students, and the general public. Contact person: Dr. Edward D. Ives, Director or Pauleena MacDougall Associate Director. Telephone: (207) 581-1892.

MARGARET CHASE SMITH CENTER FOR PUBLIC POLICY

The Smith Policy Center was created in 1989 to improve the capacity of the University to address important public problems and

issues. The Center produces and broadly disseminates policy studies which address such topics as re-inventing government, economic development, organizational change, and new initiatives in human service delivery. The primary audience for projects of the Center is the State of Maine, including its citizens, officials in the legislative and executive branches and representatives of the educational, business, and technological sectors. The Center is an interdisciplinary group of applied policy analysts and social scientists, with an affiliated faculty from four colleges and over a dozen academic departments.

In addition to numerous project and grant reports, the Center routinely publishes *Policy Briefs* on important policy issues and *Focus on Public Policy*, a newsletter devoted to current projects and policy trends. The Center is in the fifth year of publishing *Maine Policy Review*, a statewide journal devoted to improving the quality of dialogue about important issues of public policy.

MAYNARD F. JORDAN PLANETARIUM AND OBSERVATORY

The Maynard F. Jordan Planetarium and Observatory are operated by the Department of Physics and Astronomy as a resource for students and the public. The director and student staff conduct astronomy labs, present public programs and promote astronomy education for all.

The Planetarium, located on the second floor of Wingate Hall, is a domed theater where visitors can look up to see an exact simulation of the night sky produced by a Spitz Systems Nova planetarium projector. Since 1954 the planetarium has offered sky programs for visitors of all ages. Today it operates throughout the school year with a series of general admission showings on weekends (free to UMaine students) and special, private group events available almost any time. The current program schedule is available at the planetarium office, (207) 581-1341.

The Jordan Observatory is the only public observatory in the state. A small domed building next to the Memorial Student Union houses an eight-inch Alvan Clark refractor telescope and several smaller instruments that can view many of the wonders in the Maine sky. Astronomy students use the facility for studies on week nights, but the facility is opened and operated by student volunteers on weekends in the Fall and Spring semesters for the public. Everyone is welcome to drop by for a look through the eyepiece. Current observing hours and conditions are available by calling (207) 581-1348.

THE LEONARD AND RENEE MINKSY MUSIC RECITAL HALL

This 280 seat facility was designed and built primarily for performances by the Division of Music of the School of Performing Arts. In addition to music classes, the hall houses a multitude of concerts, faculty and student recitals, and various presentations by the vocal ensembles, which include the University Singers, Collegiate Chorale, and Oratorio Society, as well as the instrumental ensembles, which include the University Orchestra, Jazz Ensemble, Percussion Ensemble, Chamber Music Ensemble, OperaWorkshop, Concert Band, Black Bear Marching Band, and Symphonic Band.

NATIONAL CENTER FOR GEOGRAPHIC INFORMATION AND ANALYSIS (NCGIA)

This research center was established to study methods of collecting, storing, analyzing, and presenting geographic information in a computer-based world, and to promote an understanding of the impact of this new technology on science, society and industry. The Center supports faculty, postdoctoral research associates and graduates students from such fields as engineering, geography, computer science, and mathematics, to study concepts about geographic phenomena. The NCGIA is the only such center in the U.S. and is operated by a consortium of the University of California at Santa Barbara, the State University of New York at Buffalo and the University of Maine.

NATIONAL STUDENT EXCHANGE (NSE)

With over 140 member institutions throughout the United States and its territories, the National Student Exchange (NSE) program offers University of Maine students a unique opportunity to expand their educational horizons. NSE participation enhances a student's national and cultural perspective and allows a student to clarify personal and professional goals.

An exchange can consist of a single semester or a full academic year of coursework at any college or university within the Consortium. Credits earned at the host institution are generally transferable to UMaine, allowing students to maintain progress toward their academic objectives. Credit is given for all passing courses completed with a passing grade that have prior approval. Course grades do not transfer back and are not calculated into the overall grade point average.

All students whose goals are consistent with the purposes of the National Student Exchange program are encouraged to apply. Applicants must be full-time, degree-seeking students, of sophomore standing or above and must maintain a cumulative grade point average of at least 2.5. For information, an application form and member catalog browsing contact: Kim Johnston, National Student Exchange Office, 5713 Chadbourne Hall, Room 103, Orono, ME 04469-5713, (207) 581-1570.

E-MAIL: KIMJ@maine.maine.edu.

OFFICE OF INTERNATIONAL PROGRAMS

The Office of International Programs (OIP), has primary responsibility for coordinating UMaine international academic, research and outreach initiatives, activities and programs. The OIP fosters and supports international education on campus, and strives to promote international understanding and global awareness.

The Office of International Programs is responsible for: Recruitment and admission of undergraduate and transfer international students; Establishing and coordinating successful exchange and study abroad programs which are curriculum-driven as well as offer a global experience; Immigration processing and advising (I-20 and IAP-66); The University's Exchange Visitor program; Student orientation, support and advising; With academic departments, promoting and supporting internationalization of the curriculum; Sponsoring activities, seminars, and programs to promote international awareness; Raising international and global awareness in the community through outreach programs.

UMaine students interested in studying abroad for a semester or longer should read the "Study Abroad" section elsewhere in this catalog. Refer to Index for page location.

OFFICE OF RESEARCH

The Office of Research is responsible for planning, coordinating and administering the programs of organized research at the University of Maine. This objective is accomplished through procedures designed to:

- A. Coordinate the research efforts of the colleges and other units of UMaine with the goal of developing effective interrelationships between staff functions and projects.
- B. Develop long-range goals and objectives for the research programs of UMaine and provide faculty and staff members with the opportunity to contribute to planning, establishing and implementing such goals.
- C. Provide increased opportunity for faculty and staff members to participate in programs of research by promoting multidisciplinary and interdisciplinary approaches to solving identified problems. Comprehensive and timely information on grant support is made available on a continuing basis.
- D. Disseminate information resulting from the research programs to the general public, including the private sector.

Office of Research and Sponsored Programs

The Office of Research and Sponsored Programs has broad responsibilities for fostering and encouraging research and other scholarly activities throughout the campus. The office provides support services to faculty and staff seeking extramural funding for research, teaching, or public service projects, and to those who direct extramurally funded projects. On behalf of the University, the office oversees the submission of proposals and shares with the Principal Investigator or Project Director responsibility for the management of grants, contracts, and cooperative agreements.

The Office of Research and Sponsored Programs provides administrative oversight for the research risk committees (i.e., human subjects, animal welfare, and biosafety) and the Faculty Research Funds Program. It is also responsible for developing policies for research and related activities and for allocating University cost-sharing funds for extramural activities.

SEA GRANT

The Maine Sea Grant College Program provides a focus for the University of Maine and cooperating institutions on important marine issues and the resource potential of the Gulf of Maine and its coastal boundary. With a primary focus on marine research, graduate education, and marine extension education, the program, in partnership with the University of New Hampshire, receives funding from the Office of Sea Grant, National Oceanic and Atmospheric Administration. Additionally, funding for the Gulf of Maine Regional Marine Research Program is managed through Maine Sea Grant. The Marine Advisory Program is a network of organizations working together toward a common goal: to promote the wise use, development and conservation of northern New England's coastal and Marine resources through research-based educational activities. By integrating the talents of educational institutions and government agencies it extends the impact of its programs and responds effectively to the needs of those dependent on Marine resources.

STUDY ABROAD

The University of Maine supports a number of study abroad opportunities throughout the world. Several of these programs are direct one-to-one exchanges with universities in Canada, throughout Europe, Australia, Asia and South America. English-speaking programs are available widely, even in countries where English is not the native language. There are many opportunities for language immersion programs in French, German, Russian, Spanish and other languages. Through our reciprocal student exchange programs, students pay tuition, fees, and sometimes room and board to the University of Maine at the current rate, as they would while enrolled at UMaine. They then pay no regular fees at the host institution. Financial aid and scholarships may be used as appropriate. Applicants must have a minimum GPA of 2.75. For information, contact the Office of International Programs.

STUDY AWAY

Students from all majors are encouraged to consider one of several study away programs to earn credit towards their University of Maine degree. There are many opportunities through Study Abroad, National Student Exchange, national and international internships, cooperative programs, visiting student, and various research programs. A student may study away at another institution for an academic year, a semester, summer, May term or other interim period. Typically, a student studies away during the junior year, but various programs are available for sophomores, seniors and graduate students.

For more information about study away, the student should contact his/her academic advisor, college dean or the offices of the Study Abroad or National Student Exchange programs.

WABANAKI CENTER FOR NATIVE AMERICAN PROGRAMS

The Center exemplifies the University of Maine's commitment to "a multicultural and pluralistic educational community that encourages the full participation of all of its members." The Wabanaki Center's mission is to build and sustain a mutually beneficial relationship between the University of Maine and Native American communities.

The Wabanaki Center strives to develop a better University community understanding of traditional and contemporary Native American cultures through education. The Center works with Native American Studies in offering an academic program that not only is interdisciplinary, but also values Native approaches to learning, teaching, and understanding. The Center facilitates and encourages the exchange of resources and knowledge between Native American communities and the University of Maine.

The Wabanaki Center seeks to enhance awareness of Native Americans through its participation in campus-wide efforts to promote cultural diversity, and through its significant contributions to the development of University curricula and programs. The Center engages in Native American student development, providing support for the achievement of their academic, career, and personal objectives. The office is located in Durn Hall.

WATER RESEARCH INSTITUTE

The Water Research Institute (WRI) is one of the congressionally authorized Institutes located in each state, funded in part by the U.S. Geological Survey. The WRI focuses on research, education, and public service activities relating to water resource issues of local and regional interest. The WRI supports and utilizes University faculty, staff and students, as well as environmental specialists throughout Maine in interdisciplinary water resource projects. A major goal is training of undergraduate and graduate students to be future water resource professionals.

The Water Research Institute also conducts and supports interdisciplinary projects on issues including the environmental chemistry of surface and groundwaters, drinking water, precipitation, soils, wetlands, rocks, and sediments. Present research projects include lake eutrophication (green lakes), acid rain impacts to lakes, road salt pollution of groundwater, and nutrient cycling in forests as affected by climate change. Emerging issues include toxic mercury in fish, velpar in groundwater wells, the economic value of protecting water quality, and the recently recognized widespread occurrence of arsenic in Maine groundwater wells. One of our major ongoing projects is a whole-ecosystem research effort on acid rain and climate change, conducted at a highly instrumented, paired-watershed site on Champion Paper Company land in eastern Maine.

The WRI maintains a state-of-the-art environmental chemistry laboratory for both organic and inorganic analysis. This laboratory is the national analytical facility for the EPA environmental monitoring program, EMAP. It is a state certified drinking water laboratory, and has consistently ranked among the top 15% in quality among international research laboratories over the past 10 years. The WRI has new research capabilities in organic compounds including dioxin, PCBs and pesticides. This initiative, in conjunction with Maine DEP and the Department of Civil and Environmental Engineering, includes high resolution gas chromatograph-mass spectrometry instrumentation and new 'clean room' facilities and for low level toxics and heavy metal research, bringing these capabilities to the State of Maine for the first time.

For more information, see the Water Research Institute on the World Wide Web at <http://www.ume.maine.edu/~wri>, or access it directly from the University of Maine Home Page under Research and Public Service.

WOMEN IN THE CURRICULUM AND WOMEN'S STUDIES PROGRAM (WIC)

The mission of the Women in the Curriculum and Women's Studies Program (WIC) is to improve the quality of education for all students by helping to ensure that the experiences and perspectives of women are part of the University curriculum. The WIC Program, which reports to the College of Liberal Arts and Sciences, administers a minor in Women's Studies and encourages the development of departmental and interdisciplinary Women's Studies courses. Planning for a major in Women's Studies is in Progress. The Program also continues a long-standing effort toward revising existing courses so that they represent equally the experiences, values, contributions, and perspectives of both women and men and so that the classroom climate in all courses is equally hospitable to both female and male students. The WIC Program also cooperates with other campus units to implement the University's nonsexist language policy.

Toward these goals the WIC Program provides small grants to faculty for curriculum development, research, focused reading, and improvement of the academic climate for women. Additional WIC Program components include the weekly WIC Lunch Series, the Feminist Oral History Project, the University's annual Women's History Celebration, the Maryann Hartman Awards to Maine women of achievement, Women's Studies discussion groups, a program of speakers and performers, and a variety of other projects and events intended to assist the University in providing a full and accurate education for its students. Together with the Women's Resource Center, the WIC Program maintains a small lending library in their joint space in 101 Fernald Hall.

Admission

ENROLLMENT MANAGEMENT

MISSION

The Office of Enrollment Management is the coordination focal point for the efforts of the Admissions Office. The mission of the Admissions Office is to attract and enroll students who can successfully achieve educational fulfillment and personal growth at the University of Maine.

The University invites applications from prospective degree candidates without regard to race, color, creed, sex, national origin, handicap or age. The University seeks candidates whose academic credentials, scholastic achievement and motivation indicate promise of success in a university environment.

APPLICATION PROCEDURES

CONTACTS

All correspondence concerning undergraduate admission should be addressed to the Admissions Office, 5713 Chadbourne Hall, University of Maine, Orono, ME 04469-5713.

Candidates for admission to the Graduate School should contact the Dean of the Graduate School, 5732 Winslow Hall, University of Maine, Orono, ME 04469-5732.

To arrange a campus visit, interview or tour, contact the Admissions Office at (207) 581-1561, or send E-Mail to um-admit@maine.maine.edu

The University of Maine belongs to the National Association of College Admission Counselors, and as such subscribes to the Statement of Principles of Good Practice. Accredited by the New England Association of Schools and Colleges, the University maintains standards of academic excellence and encourages the efforts of secondary schools and colleges to maintain or achieve regional accreditation to provide a measure of academic standards for the admission of degree candidates.

The approval of candidates for admission to University degree programs is on a selective basis.

DEADLINES

The recommended date to apply for the fall semester is February 1. The recommended date to apply for the spring semester is November 1. The date to apply for fall semester Early Action is November 30. Deadline dates for the application and supporting academic documents are recommended as a guide to students who also seek University housing and consideration for financial aid. Applications received after the recommended deadline dates are reviewed based upon availability of openings within academic colleges.

NOTIFICATIONS

The Admissions Office reviews and notifies on-time prospective candidates of admission decisions between January and mid-April for fall semester enrollment.

First-year students with outstanding academic credentials who would like to receive Early Action in January are encouraged to apply by November 30. Students considered for Early Action must rank in the top ten to fifteen percent of their class and have combined SAT scores of 1200 or higher, or an ACT composite score of 27 or higher.

Academic performance in the senior year, as evidenced by mid-year grades, is an important consideration when reviewing student

credentials. Students for whom mid-year grades are needed to complete the review of the admissions application, will be notified between February and mid-April, after the office has received mid-year grades and completed the evaluation of the application and supporting academic credentials.

Candidates approved for admission prior to the completion of the academic year are accepted contingent upon successful completion of all academic work and the receipt of a final transcript of grades. The University reserves the right to withdraw the acceptance of a degree candidate if the applicant fails to achieve academic success in course work, or if the University is unable to provide academic and student support services for the student.

ACCEPTANCE DEPOSIT

Students accepted to the University of Maine for the fall semester must submit a \$150.00 *non-refundable* acceptance deposit by the Candidates Reply Date of May 1. Students accepted after May 1 must submit the nonrefundable confirmation deposit within two weeks of notification. The acceptance deposit is credited to the student's account in the University Business Office.

Students accepted to the University of Maine for the spring semester will be requested to submit a \$150.00 *non-refundable* deposit by January 1.

INTERNATIONAL CANDIDATES

Prospective students who are non-immigrants are invited to apply for admission as first-year or transfer degree candidates. Candidates are required to submit the completed International Admissions Application and an application fee of \$25.00 U.S. dollars payable by an international bank draft or money order. Please submit official or certified photocopies of all educational documents; the results of the Test of English as a Foreign Language (TOEFL), if English is not the candidate's native tongue, and/or results of the Michigan Placement Exam. The completed Financial Documentation form and certified documentation of adequate finances are required before an admissions decision is rendered. Candidates must submit the application, application fee and all required documents by March 1. Any financial documents not in English *must be accompanied* by certified English translations. Educational records must include subjects studied by year, the number of weekly lecture and laboratory hours in each subject, grades, marks or percentages earned in year-end examinations, as well as copies of diplomas, titles, degrees, and certificates, final documentation must certify that the candidate has adequate funds for study at the University; the documentation must be officially certified or notarized and be less than one year old. International students and dependents residing in the United States are required to have medical insurance coverage under the University of Maine Student Health Insurance Program or equivalent provided by a sponsoring agency.

International candidates should contact the Office of International Programs, 5782 Winslow Hall, Room 100, University of Maine, Orono, Me 04469-5782, for the International Application packet and assistance with the admissions process. The University is authorized under federal law to enroll non-immigrant alien students.

PERMANENT RESIDENT CANDIDATES

Candidates who are permanent residents of the United States, as evidenced by the resident alien card issued by the United States Immigration and Naturalization Service, must submit a photocopy of

both sides of their permanent resident card at the time of application. This is required to document the candidate's status with the I.N.S. The regular undergraduate application should be used by permanent residents.

TEST FOR ADMISSION AND/OR CREDIT

SCHOLASTIC ASSESSMENT TEST I (SAT I)

The University of Maine College Board Code is 3916. Candidates for admission are required to submit test results of the Scholastic Assessment Test I (SAT I). The ACT examination will be accepted in lieu of the SAT I.

High school seniors, and recent high school graduate candidates applying for admission, must submit SAT I or ACT test results no later than February 1. Test scores submitted after February 1 may delay the reviewing and notification process for prospective students.

Arrangements to take the College Board SAT I should be made with the local high school guidance office. Registration must be completed at least six weeks before the test date.

The College Board will administer tests on each of the following dates during 1997-1998.*

Saturday, October 4, 1997 - SAT I and II
Saturday, November 1, 1997 - SAT I and II
Saturday, December 6, 1997 - SAT I and II
Saturday, January 24, 1998 - SAT I and II
Saturday, March 28, 1998 - SAT I only
Saturday, June 6, 1998 - SAT I and II

*Please forward official test results from the Education Testing Service by indicating the University of Maine College Board Code of 3916.

TEST OF ENGLISH AS A FOREIGN LANGUAGE (TOEFL)

Candidates whose native language is not English are required to document their proficiency in English by submitting test results from the International Test of English as a Foreign Language (TOEFL). Permanent residents of the United States (as evidenced by the resident alien card) may be evaluated on a case by case basis depending upon the number of years they have lived in the United States and their fluency in the English language. Candidates who have attended high schools or colleges in the United States may be evaluated based on their academic performance and the length of time they have attended school or college in the United States. In all instances the TOEFL is preferred and may be required of any candidate.

ACHIEVEMENT TESTS

College Board Achievement Tests are not required of candidates applying to the University.

PLACEMENT TESTS

The departments of English, and Mathematics and Statistics administer on-campus placement examinations for the purpose of appropriate registration in introductory level courses. The Department of Modern Languages and Classics offers the Foreign Language Placement Examination for purposes of both placement and credit. Placement testing is available during New Student Orientation and at the beginning of each academic semester.

ADVANCED PLACEMENT (AP) AND COLLEGE LEVEL EXAMINATION PROGRAMS (CLEP)

Credit by national examination: CLEP and AP tests are most widely recognized. Other tests may also be recognized (DANTES,

PEP, etc.). If you have already taken the test, submit an official score report and as much information about the test as possible. If you are contemplating testing, please seek prior approval from your associate dean.

TRANSFER CREDIT, INCLUDING PRIOR LEARNING CREDIT

For complete Transfer Credit policy refer to the Academic Information section. See Index for page number.

ADMISSION CATEGORIES

FIRST-YEAR STUDENTS

Early Admission

The Admissions Office may consider for early admission high school candidates who have not completed the requirements for the high school diploma. Upon the recommendation of the high school principal and guidance counselor, the University will consider candidates who have demonstrated outstanding academic achievement and whose motivation and maturity reflect a strong desire to pursue a University degree program. Candidates must have completed a minimum of three years of college preparatory subjects in high school and submit test results of the Scholastic Assessment Test I or the ACT examination. Candidates are requested to arrange an on-campus interview and will also be required to have the support and endorsement of their parents or legal guardian. High school students who enter the University of Maine prior to graduation from high school may not qualify for federally-funded financial aid.

Deferred Admission

It is the policy of the University of Maine to permit approved degree candidates to defer University enrollment for up to one year. The intent of this deferred degree status is to allow students the opportunity to seek employment as a means of saving funds for college or the opportunity to travel and take a "break" from academic study. Deferred admission is not approved for candidates who seek to enroll at any other college, university, or postgraduate year of secondary school study. Candidates approved for deferred admission will be required to submit a non-refundable deposit of \$150 which will be held on account by the University Business Office. Candidates requesting deferred enrollment status must make their request in writing to the Admissions Office prior to August 1 for fall semester enrollment and prior to January 1 for spring semester enrollment.

Deferred Admission (Active Military Duty)

Candidates approved for admission to the University of Maine who enter active military duty for a period of time which exceeds one year may request deferred enrollment. Requests for military deferred enrollment will be considered on an individual basis. Requests must be received by August 1, for candidates who applied for the fall semester and by January 1 for the spring semester.

Readmission

Former University of Maine degree candidates planning to return to the campus to resume undergraduate work must contact the Academic Dean of the undergraduate college in which the candidate plans to seek enrollment. Candidates will be notified by the Dean's office of the readmission decision.

ENROLLMENT IN CONTINUING EDUCATION COURSES

The University of Maine offers a variety of academic programs through the Continuing Education Division. Categories of enrollment in Continuing Education include:

ADVANCED PLACEMENT CREDIT TABLE

AP Exam	AP Score	UMaine Course	Cr. Hrs.	AP Exam	AP Score	UMaine Course	Cr. Hrs.
Biology	3	BIO100	4	Foreign Language-German Lang.	3 4 5	GER203/204	6
Biology	4 5	BIO100/BIO204	8	Foreign Language-Latin, Virgil	3 4 5	LAT481/482	6
Calculus AB	3 4 5	MAT126	4	Foreign Language-Latin, Lit.	3 4 5	LAT453	3
Calculus BC	3 4 5	MAT126/127	8	Foreign Language-Spanish Lang.	3 4 5	SPA205/206	6
Chemistry	3 4 5	CHY121/123 & 122/124	8	Foreign Language-Spanish Lit..	3 4 5	SPA307/308	6
Computer Science A	3 4 5	COS120	3	Gov't & Politics, U.S.	3 4 5	POS100	3
Computer Science AB	3 4 5	COS120/1xx	6	Gov't & Politics, Comparative	3 4 5	POS120	3
Economics-Micro	3 4 5	ECO120	3	Music Listening/Literature	3 4 5	by special arrangement	
Economics-Macro	3 4 5	ECO121	3	Music Theory	3 4 5	MUY101/102	6
English (lang., comp./lit., comp.)	3	ENG101	3	Music Theory	5	MUY111/113	4
English (lang., comp./lit., comp.)	4 5	ENG101/131	6	Physics B	3 4 5	PHY111/112	8
History, European	3 4 5	HTY105/106	6	Physics C-Mechanics	3 4 5	PHY121	4
History, U.S.	3 4 5	HTY103/104	6	Physics C-Electricity & Magnetism	3 4 5	PHY122	4
Foreign Language-French Lang.	3 4 5	FRE205/206	6	Psychology	3 4 5	PSY100	3
Foreign Language-French Lit.	3 4 5	FRE209	3				

1. **Part-time degree students:** Students who have met all entrance requirements for either undergraduate or graduate degree enrollment, may enroll in courses offered through the Continuing Education Division. Students seeking admission must file applications with the undergraduate Admissions Office or the Graduate School.
2. **Non-degree Students:** Students interested in taking University of Maine courses for personal or professional enrichment are advised to contact the CED office in Chadbourne Hall for class schedules and registration information.
3. **Bachelor of University Studies:** The Continuing Education Division offers the Bachelor of University Studies degree. Course offerings are through the CED and Summer Session division. Interested candidates should contact the CED Office for more detailed information regarding entrance requirements.

Information and registration materials may be obtained by writing to the Director, Continuing Education, 5713 Chadbourne Hall, University of Maine, Orono, ME 04469-5713, calling (207) 581-3142 or visit the Division's Web Site at: <http://www.ume.maine.edu/~ced/lifelongtop.html> or Faxing (207) 581-3141.

ENROLLMENT OF HIGH SCHOOL STUDENTS IN UMaine COURSES

High school students who wish to enroll in University courses as non-degree students are required to apply to the Admissions Office and when approved may register through the Continuing Education/Summer Session Office for both day and evening classes. Registration for classes is completed on a space available basis. Interested students are advised to check with the Continuing Education Office or the academic college or department to determine if any academic prerequisites are required for course enrollment. Students enrolled in a non-degree status are not eligible to receive financial assistance to meet financial obligations.

NEW ENGLAND REGIONAL STUDENT PROGRAM

New England's public state universities and colleges are working cooperatively to increase the number and variety of educational opportunities for college-bound students. Under this cooperative program, qualified New England residents are given preferred admission consideration to New England state universities and colleges in specific academic programs not available in their home state. Students accepted in these programs are also granted the benefit of tuition reduction which is lower than that charged out-of-state students. This plan makes available to the residents of the region

COLLEGE LEVEL EXAMINATION PROGRAM TABLE

The following CLEP tests are approved by all colleges as substitutions for University of Maine courses. Other tests may be considered on an individual basis.

Name of Examination	Passing Score	Substitutes for	Credit Hours
American Government	60	POS 100	3
American History I	50	HTY 103	3
American History II	50	HTY 104	3
American Literature (w/essay)	46	ENG 242	3
Analysis of Literature (w/essay)	49	ENG 131	3
Biology	50	BIO 100	4
Chemistry (w/out essay)*	58	CHY 121/123 & 122/124	8
General Psychology	50	PSY 100	3
Human Growth & Development**	51	CHF 201	3
Sociology	50	SOC 101	3
Western Civilization I	50	HTY 105	3
Western Civilization II	50	HTY 106	3

*Calculator may be used.

** Not accepted by the College of Education & Human Development.

a wider variety of academic programs without requiring additional funds to duplicate specialized staff and expensive facilities in each state.

Each New England public institution of higher education involved in the regional student program has designated which of its academic majors are to be offered on a regional basis and maintains control over their own courses and programs.

Undergraduate programs begin during the student's first year of enrollment at the University. Enrolled students who change their major and thus become eligible for the regional major must notify the Office of Student Records at the University. Tuition reduction under the regional program takes effect the semester following notification.

Information may be obtained from any local high school guidance office in New England or from the New England Board of Higher Education, 45 Temple Place, Boston, MA 02111.

Academic Requirements for Admission into the University of Maine

Please Note: The required high school academic course of study, combined with academic electives, should equal at least 17 credits. All subjects listed below are required unless otherwise noted. In the case of a foreign language requirement, the 2 years of study must be in the same language.

Degree	College/School	Entrance Requirements (in years)									
		English	Algebra I&II	Geometry	Foreign Lang.	Lab Biology	Lab Chemistry	Lab Physics	Social Studies	Computer Sci.	Fine Arts
B.A./B.S.	College of Business, Public Policy & Health	4	2	1	2	1 or 1	or 1	1	2	S-1	S-1
B.S.	School of Nursing	4	2	1		1	1		2	S-1	S-1
B.S.	College of Education & Human Development ^A	4	2	1	2	1	1 or 1	1	2	S-1	S-1
B.S.	College of Engineering	4	2	1	S-2		1	1	2	S-1	S-1
B.S.	School of Engineering Technology	4	2	1	S-2		S-1	1	2	S-1	S-1
B.A.	College of Liberal Arts & Sciences ^B	4	2	1	2	1	1 or 1	1	2	S-1	S-1
B.S.		4	2	1	S-2	1	S-1	S-1	2	S-1	S-1
	Academic & Career Exploration Program ^C	4	2	1	2	1 or 1	or 1	1	2	S-1	S-1
B.A./B.S.	College of Natural Sciences, Forestry, & Agriculture ^D	4	2	1		1	1 or 1	1	2	S-1	S-1

^A College of Education & Human Development:
requires 1 year of physical education for its education programs

^B College of Liberal Arts & Sciences:
requires 3 years of lab science for selected science programs & strongly recommends biology, chemistry and physics

^C Academic & Career Exploration Program:
strongly recommends 2 years of lab science

^D College of Natural Sciences, Forestry, & Agriculture:
requires 2 years of the same foreign language for its B.A. programs only
requires 1 year of physics for selected science programs

Key:
S=Strongly Recommended

Special Note: To insure current mathematical skills, most B.S. degree programs require students to take a mathematics course during their senior year of high school. Please refer to individual undergraduate catalog listings and/or major fact sheets for more specific degree entrance requirements.

ACADEMIC ENTRANCE REQUIREMENTS

Academic course requirements for admission to the University are established by each undergraduate college. The academic courses listed within each college represent the years of high school study required for admission to the University. Students are expected to complete a college preparatory curriculum which brings to the University, classroom developed skills in writing, reading

comprehension, reasoning, mathematics, the natural sciences, history and social sciences, foreign languages and the fine arts.

Candidates out of high school who did not complete requirements for the high school diploma must present evidence of successful passage of the General Equivalency Diploma (GED) as approved by the Department of Education.

Tuition and Fees

GENERAL INFORMATION

The University expects the student to be financially responsible. All accounts are carried in the name of the student. Bills and statements are mailed to the student, not the parent. All charges are payable in full two weeks before the first day of class for each semester. After that, a \$50.00 late fee is assessed. After the fourth week of classes students with accounts that have not been paid or deferred to financial aid will have their class registrations for the semester cancelled. Financially delinquent students will not be allowed to register for courses and academic records will be withheld until all financial obligations to the University have been satisfied.

The financial requirements of the University, changing costs, state and legislative action and other matters may require an adjustment of these charges and expenses. The University reserves the right to make such adjustments to the estimated charges and expenses as may from time to time be necessary in the opinion of the Board of Trustees up to the date of final registration for a given academic term. The applicant acknowledges this reservation and agrees to the financial terms and conditions of the University by the submission of an application or by registration.

INVOICES AND STATEMENTS

Semester bills are mailed to the student's home address approximately 30 days before the start of a semester. Charges are calculated using pre-registrations, room sign-up information, and data supplied by the Admissions Office.

SCHEDULE OF CHARGES

STUDENT HEALTH FEE

The student health fee provides outpatient services at the Cutler Health Center including physician, nurse and physical therapy visits as well as on-premises lab testing and X-rays. Students who are enrolled for 12 (twelve) or more credit hours receive this coverage as part of their comprehensive fee.

Students enrolled for 7 through 11 credit hours have the option of selecting the health care coverage, at no additional cost, as part of their comprehensive fee.

Students enrolled for 1 through 6 credit hours may, for a \$95.00 per semester part-time fee, voluntarily subscribe to the health care program.

COURSE FEES

Course fees are charged in several courses. The amounts are listed in the Schedule of Classes. Course fees for courses dropped after the second week of classes are not retracted.

REFUNDS

Student charges will be refunded to students who are withdrawing from the University of Maine System in accordance with the schedules and provisions set forth as follows:

For purposes of calculating tuition refunds, the attendance period begins on the opening day of scheduled campus classes, includes weekends and holidays, and ends on the date the student notifies the Office of Students Records in writing and she/he is withdrawing.

1. Schedule For All Returning Students:

a. ACADEMIC YEAR (Fall and Spring Terms)	
Cancellation Prior to First Day of Class	100%
Withdrawal Prior To End Of First Week	100%
Withdrawal Prior To End Of Second Week	90%
Withdrawal Prior To End Of Fifth Week	50%
Withdrawal Prior To End Of Eighth Week	25%
Withdrawal After the Eighth Week	0%

b. OTHER SESSIONS

(1) Sessions which are more than three weeks	
Cancellation Prior to First Day of Class	100%
Withdrawal Prior To End Of First Week	50%
Withdrawal Prior To End Of Third Week	25%
Withdrawal After Third Week	0%
(2) Sessions which are three weeks or less	
Cancellation Prior to First Day of Class	100%
Withdrawal Prior To End Of First Week	50%
Withdrawal Prior To End Of Second Week	25%
Withdrawal After the Second Week	0%

2. Schedule For First-Time Students: First-time students will receive a refund on all institutional charges up to the point where 60% of the enrollment period has elapsed. No refunds will be made after this point in time. The percentage used to calculate the refund will be based on: $\text{Weeks Remaining} / \text{Total Weeks in Semester} = \text{Percentage of Refund}$.

3. Provisions

- No part of an advance deposit is refundable after May 1. Although such deposits are applicable to tuition charges for students who remain enrolled, they are forfeited by students who withdraw.
- Refunds for involuntary withdrawals, e.g., extended illness or military service, will be considered by the campus on a case by case basis.
- University fees are not refundable, however, Student Activity Fees may be refunded in accordance with individual campus student government policy.

4. Room and Board Room and board refunds are made in accordance with the Residence and Dining academic year contract. The academic year contracts must be signed by each student living in a residence hall. No refund will be made for withdrawals occurring less than 14 days prior to the end of a semester.

The room and board contract is for the academic year or the balance of the academic year if entering after the start of the fall semester. If an occupant leaves the residence hall and does not withdraw from the University, the charges for room and board will be through the end of the academic year. Exceptions will be made only in cases of illness, extreme hardship or when an occupant leaves for the convenience of the University. The charges in these cases will be determined by the Campus Living Department according to the circumstances of each case.

Students applying for an exception to the above must complete an exception request form available at the Campus Living Office. Additional medical or financial documentation may be requested and should be submitted with the completed form. Upon completion, a meeting may be scheduled with the Associate Director of Campus Living - Business and Administrative Services to review and discuss the request. If the decision of the Associate Director is unsatisfactory to the student, he/she may make a final appeal to the Director of

Campus Living. If the request is denied the terms of the contract remain in force. If an exception is granted, the student must move out by the date indicated on the exception form. Failure to move out by this date shall render the exception null and void.

ADD-DROP REFUND POLICY

Students will be given financial credit for courses which are dropped during the Add-Drop period only (the first two weeks of the semester). No financial adjustments will be made to students' accounts for courses dropped after this period.

INSTALLMENT PLAN

For students and parents who find it more convenient to make monthly payments, the University is offering an interest-free installment plan which enables you to pay all or part of the *annual* charges in ten equal installments beginning in June. There is a fee for the service.

If you decide to choose the installment plan, complete the specific application and return it directly to the address shown on the application. When the University receives notification of your participation in the installment plan, the student's Fall semester account will be credited for 50% of the contract amount and the Spring Semester bill will receive the remaining 50% credit.

RESIDENCY GUIDELINES

RESIDENCY CLASSIFICATION

There are many factors which will be considered in determining residency for in-state tuition purposes. No one factor can be used to establish domicile, rather all factors and circumstances must be considered on a case-by-case basis. A domicile or residency classification assigned by a public or private authority neither qualifies nor disqualifies a student for UMS in-state status.

A student applying for admission to a degree program is classified as eligible, or not eligible, for in-state tuition at the time of acceptance to the University. A non-matriculated (non-degree) student is classified as eligible, or not eligible, for in-state tuition at the time of registration. The decision, made by the campus Chief Financial Officer, or other officials designated by the campus, shall be made based on information and documentation furnished by the student and other information available to the University. No student is eligible for in-state tuition classification until he or she has become domiciled in Maine, in accordance with University guidelines, before such registration. If the student is enrolled full-time in an academic program, as defined by the University, it will be presumed that the student is in Maine for educational purposes, and that the student is not in Maine to establish a domicile. A residence established for the purpose of attending a UMS campus shall not by itself constitute domicile. The burden will be on the student to prove that he or she has established a

Maine domicile for other than educational purposes. An individual who has lived in the State of Maine, for other than educational purposes, one year *prior* to registration or application to a campus is considered an in-state student.

In general, members of the Armed Forces and their dependents will be granted in-state tuition during such periods of time as they are on active duty within the State of Maine or if their Military State of residency is Maine as evidenced by appropriate official documentation. A Maine resident who is absent from the State for military or full-time educational purposes will normally remain eligible for in-state tuition.

A student, or spouse of a student, who currently has continuous, permanent full-time employment in Maine before the student decides to apply for degree status at the University will be considered in-state for tuition purposes.

A student who is dependent on his/her parent(s) and/or legally appointed guardian (or to whom custody has been granted by court order) is considered to have a domicile with the parent(s) for tuition purposes.

In-state tuition is not available to anyone who holds a non-immigrant U.S. visa. If an individual is not a domiciliary of the United States, they cannot be a domiciliary of the State of Maine.

A Student who attended an out-of-state educational institution at in-state tuition rates in the immediately preceding semester, shall be presumed to be in Maine for educational purposes and not to establish a domicile. Again, the burden will be on the individual to prove that he or she has established a Maine domicile for other than educational purposes.

CHANGE OF RESIDENCY CLASSIFICATION

To change tuition status, the following procedures are to be followed:

- A. A "Request for Change in Tuition Status" must be filed with the campus Chief Financial Officer or designee *or before the campus's first day of classes for the summer session, fall or spring semester for which residency is requested. All applications shall be prospective.*
- B. If the Chief Financial Officer's (or such other official's) written decision, to be issued within 30 days of the first day of classes, is considered incorrect by the student, the student may appeal that decision in writing, within 30 days, in the following order:
 1. The President (or designee) of the campus. After receiving a written decision from this level within 30 days, the student has 30 days to submit a written appeal to:
 2. The Treasurer of the University System whose decision shall be final.

In the event that the Chief Financial Officer, or other designated official, possesses facts or information indicating a student's change of status from in-state to out-of-state, the student shall be informed in writing of the change in status and will be given an opportunity to present facts in opposition to the change. The student may appeal the decision of the Chief Financial Officer or other designated official as set forth in the preceding paragraph.

ESTIMATED EXPENSES 97-98

Expenses & Fees for matriculating (degree program) students taking 12 credits per semester

	Semester	Annual	One-Time
Tuition			
Maine resident \$119.00/credit hour	\$1,428.00	\$2,856.00	
Non-resident \$337.00/credit hour	\$4,044.00	\$8,088.00	
New England exchange (NEBHE) and Canadian Resident (American funds) \$178.50/credit hour	\$2,142.00	\$4,284.00	
Room and Board			
Double Room non-break housing	\$1,226.00	\$2,452.00	
Double as a single non-break housing	\$1,839.00	\$3,678.00	
Single Room non-break housing	\$1,496.00	\$2,992.00	
Double Room break housing	\$1,258.00	\$2,516.00	
Double as a single break housing	\$1,887.00	\$3,774.00	
Single Room break housing	\$1,535.00	\$3,070.00	
Meal Plans as follows	\$1,195.00	\$2,390.00	
19+ = \$25.00 on MaineCard dining funds			
14+ = \$100.00 on MaineCard dining funds			
10+ = \$250.00 on MaineCard dining funds			
7+ = \$400.00 on MaineCard dining funds			
UMaineNet Start-up Fee (one-time fee for card) is \$50.00 to \$150.00			
Activity for UMaineNet		\$50.00	
Student Fees			
Technology Fee \$3.00/per credit hour	\$36.00	\$72.00	
Comprehensive Fee			
Part-time 6-11 credit hours	\$96.00	\$192.00	
Full-time 12 or more credit hours	\$192.00	\$384.00	
Communications Fee	\$10.00	\$20.00	
Recreation Fee	\$12.50	\$25.00	
Student Activity Fee	\$25.00	\$50.00	
Other Fees			
Health insurance (optional)		\$492.00	
Graduation Fee (graduating seniors only)			\$20.00
*Additional lab fees are required for some courses	.	.	
Yearbook (optional)		\$70.00	
Late Fee	\$50.00		
Re-instatement Fee	\$50.00		
Latti Fitness Center (optional)	\$35.00	\$70.00	
Non-refundable charges			
Application Fee			\$25.00
Matriculation Fee (first-time degree students)			\$15.00
Orientation Fee (new students)			\$50.00
Advance deposit			\$150.00

Books and supplies approximately \$500.00 per year

*****Tuition and Fees Subject to Change*****

STUDENT SERVICES AND INFORMATION

STUDENT FINANCIAL AID

The Office of Student Financial Aid administers a variety of programs to help students finance their education. To be eligible, a student must be a U.S. citizen or eligible non-citizen, holding a high school diploma or G.E.D., admitted to a University of Maine degree program, making satisfactory academic progress (see section on Academic Progress Policy for Financial Aid), and enrolled at least half-time for most types of financial aid. Students who are in default on any prior educational loan may not be eligible for any further financial aid.

To enable the University to make a proper judgement as to the amount and type of assistance a student will be offered, each student must apply for financial aid. Aid applications must be filed each year, regardless of whether the student has filed previously. Education is seen as a family responsibility, and in many cases both parent and student information will be required.

To apply for the 1997 - 1998 academic year, which begins with the Fall 1997 semester and ends with the Summer 1998 term, undergraduate students must file the "Free Application for Federal Student Aid" (FAFSA); students who receive a "Renewal Application" from federal processing center can file this form instead of the FAFSA. Either form should be mailed by mid-February to meet UMaine's priority filing deadline of March 1.

Priority consideration will be given to students whose FAFSA or Renewal Application is received by the federal processing center on or before March 1, 1997. Applications received after this date will be considered only after on-time applications are processed and if funds are available. To maintain priority standing, students and parents must respond promptly to all requests for information and/or further documentation. This may include copies of federal income tax returns, earnings statements, and other financial documents. An offer of financial aid can only be made once all required documents are received and reviewed.

Some of the financial aid programs available to undergraduate financial aid applicants include:

Federal Pell Grants

Available to eligible undergraduate students pursuing their first bachelor's degree, based on financial resources. Pell Grants do not have to be repaid.

Federal Supplemental Grants

Offered to undergraduates with exceptional financial need who are pursuing their first bachelor's degree. Supplemental Grants do not require repayment.

University Grants and Scholarships

Awarded on the basis of financial need and/or academic achievement and/or the ability to meet certain requirements as stipulated by the scholarship donor. Scholarship listings are available upon request through the Office of Student Financial Aid.

Federal Perkins Loans

Low-interest loans awarded by the Office of Student Financial Aid on the basis of demonstrated financial need. A Promissory Note must be signed each semester in which a student accepts the offer of a Perkins Loan. Repayment is deferred while enrollment remains at

least half time, and no interest is charged on the loan until repayment is expected.

Federal Student Loans (subsidized and unsubsidized)

Available through banks, credit unions and other lending institutions. Contact the Office of Student Financial Aid for information on how to apply. Subsidized Student Loans are made to students with demonstrated financial need, while unsubsidized Student Loans are made to students with only partial or no subsidized loan eligibility. Maximum loan eligibility, both subsidized and unsubsidized, is determined by a student's grade level. All other financial assistance is also taken into consideration when determining a student's loan eligibility. Interest rates are variable for new borrowers, but will not exceed 8.25%. First-time borrowers must attend an entrance interview/counseling session before the proceeds check can be released.

Federal Work-Study

Offers eligible students the opportunity to earn spending money and/or living expenses, while gaining valuable work experience. Once a work-study job is secured, the student will receive bi-weekly paychecks until the total amount of the work study award has been earned. Job listings are available at the Office of Student Employment.

CHANGES TO FINANCIAL AID AWARDS

Changes to awards may be necessary at any time during the academic year due to any or all of the following circumstances:

- receipt of additional assistance and/or benefits from another source
- corrections and updates to original application data
- changes in student/family circumstances
- adjustments to reflect actual enrollment each semester

An updated Award Letter is sent to the student if and when any changes occur.

NOTE: All aid applicants are considered without regard to race, color, religion, sex, sexual orientation, national origin, or citizenship status, age, disability, or veteran status, except in those cases where the aid is intended to rectify prior or existing imbalance in minority or other group participation in the educational process. If you are a person with a disability and will need any accommodations to participate in these programs, please contact the Office of Student Financial Aid to discuss your needs.

ACADEMIC PROGRESS POLICY FOR FINANCIAL AID

In order to maintain eligibility for financial aid (based on federal methodology), matriculated undergraduate and graduate students must progress at a rate that ensures completion of their degree programs within a reasonable time frame. Each student's entire academic history will be reviewed in June of each year of attendance to ensure adherence to the standards listed below.

The requirements for eligibility are:

1. Beginning with the first semester of study in a degree program at the University of Maine, a financial aid recipient is required to accumulate earned hours totaling at least 70% of the number of hours attempted.
2. Minimum undergraduate GPA eligibility is dependent upon maintaining a minimum grade point average (GPA) according to the following criteria:

Degree Credit Hours	Cumulative GPA
00-22	1.5
23-52	1.7
53-82	1.8
83+	1.9

For graduate students the minimum standards for continued eligibility are:

Masters Degree Program: a student cannot receive more than 6 credits of "C."

Doctoral Degree Programs: a student cannot receive more than 12 credits of "C."

3. For an undergraduate program, the maximum time frame may not exceed 150 percent (150%) of the published length of the program. For instance, if the published length of an academic program is 120 credit hours, the maximum time frame could not exceed 180 attempted degree hours (120 x 1.5).

Probation and Denial

Any student not meeting the standards described above will be placed on Financial Aid Probation for a one-year period (during which aid eligibility will be maintained). A student not meeting the required 70% of credit hours attempted or the minimum GPA standard by the end of the probationary year will be denied any additional financial aid. Aid will be denied after the maximum time frame has been reached.

Appeal Policy

Students whose aid is withdrawn for not maintaining academic progress according to the standards outlined above may appeal their loss of aid by writing to the Chair of the Financial Aid Academic Progress Appeal Committee. The decision to withhold aid eligibility may be overridden by the appeal committee in circumstances which warrant special consideration. Such circumstances may include but are not limited to medical emergencies or family crises which resulted in the student's not meeting the stated requirements.

Students who have been denied financial aid for failure to meet the academic progress requirements must apply to the appeal committee for reconsideration prior to reinstatement of aid eligibility.

CAMPUS LIVING SERVICES

This department of Student Affairs provides on-campus housing for single students and students with families, as well as dining services to the campus community.

Residence Halls

Campus Living offers eighteen residence facilities for single in addition to family housing at University Park. Each facility is staffed with student paraprofessionals who work to create a supportive residence hall atmosphere for resident students. For more information about Campus Living residence service, contact (207) 581-4580.

Dining Services

Residence hall students may choose from one of four meal plan options. 19-Plus meal plan, 14-Plus meal plan, 10-Plus meal plan and a 7-Plus meal plan are offered. Each meal plan has, in addition to the dining commons meal each week, a value of Dining Funds associated with them for the semester.

- 19-Plus - \$25.00
- 14-Plus - \$100.00
- 10-Plus - \$250.00
- 7-Plus - \$400.00

The Dining Funds can be used in any of the Dining Services eateries or at Hilltop or Southside Markets, located on campus.

Meal plans may be charged ONCE during the first 13 weeks of each semester. Meal Plan contracts are valid for both the Fall and Spring semesters. Dining Commons meals are issued every week, beginning with Saturday brunch. MaineCard Dining Funds are issued at the beginning of the semester and balances roll over from the Fall to Spring semester. MaineCard Dining Fund balances are forfeited at the end of the Spring semester. *No refunds* are issued for unused meal and/or Maine Card Dining Funds. *Commons meals are not transferable* however, your MaineCard Dining Funds may be used to purchase guest meals and groceries. Meal plans do not cover University break periods, although Dining Funds, on account, may be used in the retail operations.

Guest Meals

At the beginning of the Fall and Spring semester, Dining Services will add three (3) dining commons guest meal passes to each of the traditional resident meal plans (19+, 14+, 10+ and 7+). These guest meal passes will be available electronically and can be used for any guest, including friends, family or even your favorite faculty member. This guideline provides that guest *must* be accompanied by a resident with a valid meal plan.

Off-Campus Meal Plan

For those students who live off campus, Dining Services offer a series of meal plans designed specifically for the commuter student, faculty or staff who are interested in savings that can be achieved by prepaying for a meal plan. Along with considerable cost savings, these meal plans can be *charged* to a valid student account. All dining commons plans are *good for the full academic year and can be used in Hilltop, Stewart, Stodder or York dining commons for all 19 meals offered per week.* Dining Funds are also available for purchase.

To learn more about on campus dining options for both the resident or non-resident student, contact the Campus Living Dining Services Office at (207) 581-4706.

Guest Housing

Guest housing is available for a minimal fee to campus visitors. For reservations or more information about the guest housing services contact (207) 581-8577.

STUDENT EMPLOYMENT

The Office of Student Employment is located on the second floor of Alumni Hall and offers programs designed to expand job opportunities for all students who desire employment while attending the University of Maine. There are two assistance programs available: Part-Time and Summer Employment and Federal Work Study.

The Part-Time and Summer Employment Program is available to students enrolled in a degree program and registered for a minimum of three credit hours. Part-time jobs are non-work study, off-campus opportunities, primarily in the greater Bangor area, with some statewide and out-of-state listings. Job files are available for student viewing upon registration with the program.

Federal Work Study allows eligible students to work either on campus or in various off-campus, nonprofit agencies during the academic year as well as during the summer. Some positions are defined as "Community Service". Eligibility is based on financial need, for matriculated students registered at least half time. Students wishing to be considered for Work Study must apply for financial aid and meet all University of Maine deadlines.

To find out more information about each of these programs, contact the Office of Student Employment at (207) 581-1349.

CAREER CENTER

The primary purpose of the Career Center is to assist students in developing, evaluating and effectively initiating and implementing career plans. The Career Center provides career planning and placement services for all undergraduate and graduate students. It also coordinates the Cooperative Education/Internship program, providing work/learning opportunities for students in conjunction with over 50 academic departments. Services offered by the Career Center include:

- Individual career counseling and job search advising
- CHOICES, a computerized guidance system
- Interest inventories
- Academic information on undergraduate, graduate and professional programs across the U.S.
- Self-Help Career Lab, staffed by trained peer career assistants
- Workshops and seminars on career topics
- Resume and cover letter critiques
- A "mock" interview service, using videotape equipment and professional critiques
- The Maine Mentor Program, linking students with UMaine alumni for career assistance and advice
- Local, state, and national job listings for full-time professional positions, cooperative education positions and internships
- On-campus and off-campus recruiting programs
- A homepage on the World Wide Web with links to hundreds of career opportunities
- A resume referral service for students and employers
- Weekly Bulletins, produced in hard copy and electronic formats
- Computer work stations in the Career Lab with Internet access

For further information contact the Career Center, 5713 Chadbourne Hall, University of Maine, Orono, Maine 04469-5713; (207) 581-1359. E-mail: counihan@maine.maine.edu. Internet address: <http://www.umeais.maine.maine.edu/~career/>.

WELLNESS SERVICES

COUNSELING CENTER

The Counseling Center's primary mission is to provide services and programs to promote the personal development and psychological well-being of students. Secondly, the Center encourages a University atmosphere which is conducive to growth and which maximizes students' educational attainments. The Counseling Center offers a full range of counseling and mental health services to help students in the following areas:

- Educational functioning and decision making
- Career selection
- Personal and emotional development
- Relationship difficulties
- Psychological disorders and emotional crises

The Counseling Center is located on the Gannett side of Cutler Health Center. To learn more about the services offered at the center, call (207) 581-1392.

STUDENT HEALTH SERVICES

Student Health Services provides numerous ambulatory medical and health-promotion services to students. Students may be seen for treatment of acute medical problems of injuries, assistance in dealing with chronic illness, problems or injuries, gynecological checkups, health education or consultation. The Resource Area sees students on a walk-in basis only. The Resource Area is staffed with a physician or nurse. Cutler Health Center also houses a laboratory, x-ray, and pharmacy.

The Clinical staff includes pharmacists, physicians, a physician's assistant, nurse practitioners, nurses, medical technologist, medical assistant, athletic trainers and a registered radiology technologist. Specialists provide additional care through regularly scheduled clinics for physical therapy, podiatry, orthopedic, optometry or gynecological consultations. Support staff maintain medical records and provide assistance with access to care by making appointments and routing students to the appropriate areas.

The Comprehensive Fee covers the cost of the health care visit for full-time students. Students carrying 6 to 11 credit hours may purchase a health service option at the Business Office. There are additional charges for x-ray, laboratory, and some specialized medical services. The pharmacy offers prescription service at a very competitive price. The health insurance policy sponsored by the University of Maine covers some charges billed by Student Health Services. Students need to save the white copy of the bill for filing insurance claims. Claim forms and further information are available at the Billing Office at Cutler Health Center, (207) 581-4010.

Women's Health Service, Ambulatory Care Clinic, Asthma Clinic, Optometry, Podiatry, and the specialty Clinic are specialized clinical services. Most services are offered on an appointment basis. The pharmacy and laboratory accept orders from outside clinicians. Prescriptions may be filled and lab orders completed on a walk-in basis. The Resource Area provides services on a walk-in basis. We can facilitate transportation to a local Emergency Department if necessary. To schedule an appointment for evaluation of illness symptoms, call (207) 581-4179.

The Health Center is Open 8:00 a.m. - 4:30 p.m. when classes are in session. During school vacations, administrative services and limited clinical services may be available. Watch for updated clinic hours published in *The Maine Campus* prior to upcoming breaks.

After Hours Service

An after-hour medical answering service is available to coordinate taxi transportation to and from the hospital. The service is activated by calling (207) 581-4000 week nights and 24 hours on weekends, holidays, and breaks when the Health center is closed. There is no charge for the taxi service if Cutler is provided with a copy of the hospital medical record. The costs of all hospital, emergency room medication, radiology, laboratory, non-health-center physician or other services are the responsibility of the student. The answering service can also contact a Student Health Services clinician as necessary.

Women's Health Service

Women's Health Services are offered by appointment. These services include annual exams, screening and treatment for sexually transmitted diseases and infections, pregnancy testing, pregnancy options counseling and referral, breast exams and self-breast exam education, birth control provisions, assessment and treatment of urinary infections, consultation, follow-up, and referral for a variety of women's concerns including PMS, menopause and services for women who have experienced sexual trauma. Call (207) 581-4182.

RELIGIOUS AFFAIRS

Fifteen religious groups provide opportunities for religious programming, worship, study, conversation, and witness: Hillel Foundation (Jewish), Maine Christian Association (Protestant), St. George's Greek Orthodox Church (Greek Orthodox), Our Lady of Wisdom Parish/Newman Center (Roman Catholic), U.M. Student Fellowship (Pentecostal), United Methodist Church (Methodist), Redeemer Lutheran Church (Lutheran), Orono Friends (Quaker), Church of Universal Fellowship (varying Protestant denominations) and St. James Episcopal Church (Episcopal). The chaplains are available for counseling and/or instruction. The following groups are

approved student organizations which meet weekly in the Memorial Union:

- The Intersvarsity Christian Fellowship
- Campus Crusade for Christ
- Bahai Club
- UMaine Muslim Student Group
- Hindo Prayers

The Dean of Students and Community Life, located in the Memorial Union, serves as a resource in the area of religious affairs. Questions and comments pertaining to religious affairs should be directed to (207) 581-1406.

CENTER FOR STUDENTS AND COMMUNITY LIFE

The Center for Students and Community Life is a hub of offices that cover a diversity of student-oriented and community-oriented programs and services. Not only does the Center advocate for students, helping them to solve personal, academic and social issues and concerns they may have, but the Center also endeavors to enhance the life skills required of students in communities of the next century: communication, leadership, and problem-solving. The staff at the Center for Students and Community Life work with students, faculty, and others to create a caring environment that is distinguished by its focus on individual and community development.

DEAN OF STUDENTS AND COMMUNITY LIFE

The Dean of Students and Community Life is an advocate for students. The Dean helps students navigate administrative red tape, offers counsel and advice, and works with them to evaluate and develop better possibilities for their life on campus. The Dean also oversees the programs and services sponsored by the Center. If you have any questions about the programs and services offered at the Center, call (207) 581-1406.

THE COMMUTER AND NON-TRADITIONAL STUDENTS PROGRAM

The Commuter and Non-Traditional Students Program was established to address and resolve the needs, problems and concerns of non-traditional students at UMaine. The Commuter and Non-Traditional Students Program provides unique support and information, and educational experience.

- Individual Advising and Support
- Financial Aid Resources
- Information and Referral to campus and community resources
- Access to Health Services/scheduled clinics
- Study skills library and seminars
- Coffee hour socials - An opportunity to interact with other non-traditional students
- A Commuter Lounge (open daily) which serves as a study area, or "homebase" for commuter students. The lounge is furnished with a microwave, and courtesy phone for your convenience.

For more information call (207) 581-1405.

JUDICIAL AFFAIRS OFFICE

The Judicial Affairs Office is responsible for the administration and enforcement of the Student Conduct Code, which promotes student development by encouraging acceptable community behavior. Students may contact the Judicial Affairs Office at (207) 581-1409 to learn more about the services offered. Some of the resources provided by this office are listed below:

- Conduct Committee
- Resources/referrals in matters requiring legal assistance
- Judicial Affairs Support Program

THE MEMORIAL UNION RECREATION CENTER

The Memorial Union Recreation Center consists of a gameroom, an outdoor equipment rental program, and an outdoor adventure program known as Maine Bound, which takes learning outside of the classroom. For more information about the programs and services offered, contact (207) 581-1974.

MULTICULTURAL STUDENT AFFAIRS

Multicultural Students Affairs is a comprehensive office with the Center for Students and Community Life, providing services and support for the University of Maine multicultural student populations. The office is committed to celebrating diversity and empowering students through education, leadership and campus and community involvement. The office holds a unique campus and institutional wide responsibility toward the promotion and advocacy of pluralism.

The Office of Multicultural Student Affairs extends its services beyond the University of Maine campus and strives to integrate multicultural student involvement in the local region, and state wide through participation in education projects, social programs and celebrations of diversity.

Multicultural Student Affairs Guiding Principles

- to promote academic, personal and social support to the multicultural student populations
- to advocate and educate the entire community regarding issues of diversity and difference at the University of Maine
- to affirm cultural diversity in the student body, faculty, administration and staff
- to empower multicultural students through active leadership roles, and involvement on campus and in the community

OFF-CAMPUS HOUSING

Off-campus Housing Assistance is available to all students and staff at the University through the Memorial Union Information Center on the main floor of the Memorial Union. This office maintains a listing of available living quarters in the Orono, Old Town, Bangor and Veazie area. For more information about off-campus housing, please call (207) 581-1820 or visit our off-campus web site: <http://www.ASAP.um.maine.edu/offcampus>.

STUDENT ACTIVITIES AND ORGANIZATIONS

The Student Activities and Organizations Office offers information and assistance to students looking to become involved one or more of the following 100+ organizations and clubs on campus. In addition, the office is available to assist student organizations with their planning needs. To learn more about Student Activities and Organizations at UMaine, contact the Student Activities Office, 5748 Memorial Union, Orono, Maine, 04469-5748.

Student Organizations

ACCOUNTING CLUB
AD VENTURES
AFRICAN AMERICAN ASSOCIATION
AMATEUR RADIO CLUB
ANIMATION CLUB
ANTHROPOLOGY CLUB
ARCHAEOLOGICAL SOCIETY
ARMY ROTC RANGER TEAM
AROSTOOK HALL GOVERNING BOARD
ASIAN STUDENT ORGANIZATION
ASSOCIATION OF STUDENT AND ADMINISTRATIVE PUBLICATIONS
BALENTINE HALL DORM GOVERNING BOARD
BLADE SOCIETY

BLUE LINE CLUB
 CHESS CLUB
 CIRCLE K INTERNATIONAL
 COLLEGE REPUBLICANS
 COLVIN HALL DORM GOVERNING BOARD
 CROSS COUNTRY SKI CLUB
 CUMBERLAND HALL DORM GOVERNING BOARD
 CYCLING CLUB
 DEBATE COUNCIL
 ECONOMICS STUDENT ASSOCIATION
 ESTABROOKE HALL DORM GOVERNING BOARD
 FAROG (LE CLUB FRANCOPHONE)
 FINANCIAL MANAGEMENT ASSOCIATION
 FLYING CLUB
 FOREST FIRE ATTACK TEAM
 GAMER'S GUILD
 GEOLOGICAL SOCIETY
 GERMAN CLUB (DEUTSCHER VEREIN)
 GREATER BANGOR AREA NAACP
 GUEST LECTURE SERIES
 HANCOCK HALL DORM GOVERNING BOARD
 HART HALL GOVERNING BOARD
 HEALTH PROFESSIONS CLUB
 HIGH ANGLE RESCUE TEAM
 HUMAN RIGHTS COALITION
 INTERNATIONAL AFFAIRS CLUB
 INTERNATIONAL STUDENTS CLUB
 KARATE CLUB (KYOKUSHIN CLUB)
 KENNEBEC HALL DORM GOVERNING BOARD
 KNOX HALL DORM GOVERNING BOARD
 LANDSCAPE HORTICULTURE CLUB
 LOS COLORES UNIDOS
 MAINE ALLIANCE OF STUDENT MOVIE MAKERS
 MAINE ANIMAL CLUB
 MAINE FORESTERS
 MAINE MASQUE
 MAINE OUTING CLUB
 MAINE PEACE ACTION COMMITTEE (MPAC)
 MAINE REVIEW
 MAINE STEINERS
 MAINE VOCALS
 MODEL UNITED NATIONS
 MOUNTAIN BIKING CLUB
 MUSIC EDUCATORS
 NATIVE AMERICANS AT MAINE
 NUTRITION CLUB
 OFF CAMPUS BOARD
 ORCHESTRA CLUB
 ORGANIZATION OF HONOR STUDENTS
 ORONO STUDENT NURSES ASSOCIATION
 OXFORD HALL DORM GOVERNING BOARD
 P'NUTS CO-OP
 PEER EDUCATORS PROGRAM
 PENOBSCOT HALL DORM GOVERNING BOARD
 PHILOSOPHY CLUB
 PHOTOGRAPHY CLUB
 PREVENTIVE MEDICINE PROGRAM
 PRISM (YEARBOOK)
 PRISONERS OF GENDER
 RANGER CHALLENGE TEAM
 RESIDENTS ON CAMPUS
 ROTARACT
 SCUBA CLUB
 SENIOR COUNCIL
 SHOOTING CLUB
 SKI CLUB
 SOCIETY FOR CREATIVE ANACHRONISM
 SOUTH ASIAN ASSOCIATION OF MAINE
 SPEECH-LANGUAGE AND HEARING CLUB

STODDER HALL DORM GOVERNING BOARD
 STUDENT ALUMNI ASSOCIATION
 STUDENT ART LEAGUE
 STUDENT ENTERTAINMENT AND ACTIVITIES
 STUDENT ENVIRONMENTAL ACTION COMMITTEE
 STUDENT GOVERNMENT
 STUDENT ORGANIZATION FOR NATURAL RESOURCES
 (SONAR)
 STUDENT WOMEN'S ASSOCIATION
 SUSTAINABLE AGRICULTURE INTEREST GROUP
 UMAINE DEMOCRATS
 UNION BOARD (THE)
 UNIVERSITY GREEN PARTY
 UNIVERSITY JUNCTION
 UNIVERSITY RECREATION CLUB
 UNIVERSITY SINGERS
 VIDEO CLUB
 VOLLEYBALL CLUB (MEN'S)
 VOLLEYBALL CLUB (WOMEN'S)
 VOLUNTEER AMBULANCE CORPS
 VOLUNTEERS IN COMMUNITY SERVICE
 WILDE STEIN CLUB
 WOMEN'S ICE HOCKEY
 WOODSMEN'S TEAM
 WRESTLING TEAM
 YORK HALL DORM GOVERNING BOARD
 YORK VILLAGE HALL DORM GOVERNING BOARD

Professional Societies

AGRICULTURAL AND RESOURCE ECONOMICS
 AMERICAN ADVERTISING FEDERATION
 AMERICAN CONGRESS ON SURVEYING AND MAPPING
 AMERICAN INSTITUTE OF CHEMICAL ENGINEERS
 AMERICAN MARKETING ASSOCIATION
 AMERICAN SOCIETY OF CIVIL ENGINEERS
 AMERICAN SOCIETY OF MECHANICAL ENGINEERS
 ASSOCIATED GENERAL CONTRACTORS
 ASSOCIATION OF COMPUTING MACHINERY
 FOREST PRODUCTS RESEARCH SOCIETY
 INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERING
 MAINE AGRICULTURAL AND FOREST ENGINEERS
 ASSOCIATION
 PAPER INDUSTRY MANAGEMENT ASSOCIATION
 SOCIETY OF AMERICAN FORESTERS
 SOCIETY OF PHYSICS STUDENTS
 SOCIETY OF PROFESSIONAL JOURNALISTS
 SOCIETY OF WOMEN ENGINEERS
 STUDENT AMERICAN DENTAL HYGIENISTS' ASSOCIATION
 STUDENT HEALTH ADVISORY COMMITTEE
 TECHNICAL ASSOCIATION OF PULP AND PAPER INDUSTRY
 WILDLIFE SOCIETY

Religious Groups

BAHA'I CLUB
 B'NAI BRITH HILLEL (JEWISH)
 CAMPUS CRUSADE FOR CHRIST
 HINDU PRAYERS
 INTER-VARSITY CHRISTIAN FELLOWSHIP
 LATTER-DAY SAINTS STUDENT ASSOCIATION
 MAINE CHRISTIAN ASSOCIATION (PROTESTANT)
 NEWMAN CENTER (CATHOLIC)
 UMAINE MUSLIM STUDENT GROUP
 UMAINE STUDENT FELLOWSHIP (PENTECOSTAL)

Honor Societies

ALL MAINE WOMEN (SENIOR WOMEN)
 ALPHA DELTA SIGMA (ADVERTISING)
 ALPHA EPSILON RHO (BROADCAST)
 ALPHA KAPPA DELTA (SOCIOLOGY)

ALPHA LAMBDA DELTA (FIRST YEAR STUDENT)
 ALPHA ZETA (AGRICULTURAL)
 BETA GAMMA SIGMA (BUSINESS ADMINISTRATION)
 CHI EPSILON (CIVIL ENGINEERING)
 ETA KAPPA NU (ELECTRICAL ENGINEERING)
 KAPPA DELTA PI (EDUCATION)
 KAPPA KAPPA PSI (BAND)
 KAPPA OMICRON PI (HOME ECONOMICS)
 OMICRON DELTA EPSILON (ECONOMICS)
 ORDER OF OMEGA (FRATERNITY/SORORITY)
 PHI ALPHA THETA (HISTORY)
 PHI BETA KAPPA (LIBERAL ARTS AND SCIENCES)
 PHI KAPPA PHI (UNIVERSITY WIDE)
 PI ALPHA ALPHA (PUBLIC AFFAIRS)
 PI KAPPA LAMBDA (MUSIC)
 PI MU EPSILON (MATHEMATICS)
 PI SIGMA ALPHA (POLITICAL SCIENCE)
 PI TAU SIGMA (MECHANICAL ENGINEERING)
 PSI CHI (PSYCHOLOGY)
 SCABBARD AND BLADE (MILITARY)
 SENIOR SKULLS (SENIOR MEN)
 SIGMA DELTA CHI (JOURNALISM)
 SIGMA DELTA PI (SPANISH)
 SIGMA PHI ALPHA (DENTAL HYGIENE)
 SIGMA PI SIGMA (PHYSICS)
 SIGMA TAU DELTA (ENGLISH)
 SIGMA XI (SCIENTIFIC RESEARCH)
 SOPHOMORE EAGLES
 SOPHOMORE OWLS
 TAU ALPHA PI (ENGINEERING TECHNOLOGY)
 TAU BETA PI (ENGINEERING)
 TAU BETA SIGMA (BAND)
 XI SIGMA PI (FOREST RESOURCES)
 20th MAINE HONOR SOCIETY

Fraternities

ALPHA GAMMA RHO
 ALPHA PHI OMEGA (SERVICE)
 BETA THETA PI
 DELTA TAU DELTA
 INTERFRATERNITY COUNCIL
 KAPPA SIGMA
 LAMBDA CHI ALPHA
 PHI ETA KAPPA
 PHI GAMMA DELTA
 PHI KAPPA SIGMA
 PI KAPPA ALPHA
 SIGMA ALPHA EPSILON
 SIGMA CHI
 SIGMA NU
 TAU KAPPA EPSILON
 THETA CHI

Sororities

ALPHA OMICRON PI
 ALPHA PHI
 CHI OMEGA
 DELTA DELTA DELTA
 DELTA ZETA
 GAMMA SIGMA SIGMA (SERVICE)
 PANHELLENIC COUNCIL
 PHI MU
 PI BETA PHI

THE UNION BOARD: "DIVERSIONS"

The Union Board is a programming board of students and staff with an interest in campus activities. The Board (TUB) creates a calendar of social, recreational and leisure-time events. With the

support of the Comprehensive Fee, The Union Board delivers a campus activities program with minimal personal cost to students. Membership in the Union Board is open to all students interested in selecting, planning, and running events. Students wishing to participate are encouraged to visit The Union Board located in the Memorial Union, (207) 581-1735.

STUDENT GOVERNMENT

University of Maine Student Government, Inc. is the largest organization of its kind in the State of Maine. It is funded and controlled by undergraduate students with the sole purpose of benefiting students through educational, cultural and social programs, events and activities.

The activities of Student Government, Inc. are directed by an elected president and vice-president who appoint and coordinate a diverse administrative staff including representative boards, service boards, many committees, and other diversions representing the needs of students and promoting student rights.

Student Government, Inc. receives moneys from the Student Activity Fee. The Student Government Executive Budgetary Committee, as an advisory body, assists in budget matters and in disbursing funds to groups and organizations requesting assistance.

The General Student Senate (GSS) is the legislative unit of Student Government, Inc. and is under the leadership of the vice-president. The GSS has final approval over all Student Government matters. It is composed of 35 to 55 senators, each elected by a specific constituency for a one-year term. The GSS and its standing committees deal with budget matters, Student Government, Inc. policy, recommendations to the University, and any matters affecting the students of UMaine.

The boards that help make up the Student Government, Inc. are listed below.

Representative Boards

Off-Campus Board (OCB)

The Off-Campus Board was created to serve the needs and interests of the undergraduate students who live off-campus. This goal is accomplished by organizing social functions, concerts and publications. OCB also keeps current on the local changes in town policies that may affect the off-Campus student population. They are also the prime organizers of Bumstock.

Residents on Campus (ROC)

ROC coordinates the activities of the 18 Hall Governing Board (HGB) and serves as the central governing body for all on-campus students. In this role it assists in and oversees implementation of policies, programs, and activities as well as controlling the Student TV Channel.

Inter-Fraternity Council (IFC)

The 14 fraternities at the University are represented by the Inter-Fraternity Council. Membership consists of two members from each fraternity, the president and one other member. The officers of IFC are elected in the Fall by the entire fraternity system. The Council sponsors programs for the fraternity system of an educational and social nature and assists in the development of University policies that affect fraternities. The Inter-Fraternity Council and Panhellenic Council (see below) are funded through Student Government and provide services for students and the community, including marathons, blood drives and big brother/big sister programs. Greek Week, leadership seminars, a competitive intramural schedule and many social events highlight Greek life on campus.

Panhellenic Council (PANHEL)

The Panhellenic Council is the representative council for sorority women on campus. PANHEL coordinates activities for 7

sororities and cosponsors events with IFC, such as Winter Carnival and Greek Week. PANHEL is also involved in a variety of philanthropic. The election of officers is held in the Fall of each year.

Service Boards

Guest Lecture Series (GLS)

Guest Lecture Series is a board of Student Government whose mandate is to promote a well-rounded education by presenting lectures on diverse topics and subjects to the University community. GLS sponsors four to six lectures each year and is also responsible for assisting various campus organizations and departments in bringing speakers of special interest through co-funding and other support.

GLS is composed of 10 to 15 students, five of whom serve on the Executive Committee. All new members are welcome.

Legal Services (LS)

Legal Services is a professional law office retained by Student Government and funded by a portion of the activity fee. This service is provided on a contractual basis with a local law firm. Legal advice and/or representation is provided to undergraduate students who have paid an activity fee. LS provides general legal services as well as academic and administrative appeals to the University and conduct code violations. LS cannot advise or handle cases involving disputes between undergraduate students.

Maine Day Board

The Maine Day Board organizes the University of Maine, Maine Day tradition. This event has been held for 60 years. Maine Day is an opportunity for the University as a whole to get involved in a day of community service, as well as enjoy the many events that day.

Maine Day will be on the last Wednesday of the Spring semester. Classes will be cancelled on this day with the exception of classes, including laboratory and recitation sections, that meet only on Wednesdays. Within 30 days after Maine Day, the group that has overall responsibility for organizing the event (currently the Student Alumni Association) shall submit to the Faculty Senate a list of projects that were accomplished and the number of students who participated.

Senior Council

Senior Council serves as the campus liaison between the senior class and the Administration in organizing and coordinating the activities and events surrounding commencement.

Student Entertainment and Activities Board (SEA)

The SEA Board objective is one of sponsoring and co-sponsoring various events within the campus community. Activities include assisting with Bumstock (the annual spring music festival) and Maine Center for the Arts concerts and lectures.

BOOKSTORE

The University Bookstore, located in the Memorial Union, is an auxiliary service department of the University of Maine. Accordingly, its purpose is to serve the academic community by making available books and supplies required for course work. In addition, the store maintains a wide selection of general books, supplies and other merchandise and services which contribute to the overall educational experience offered by the University of Maine. For more information call (207) 581-1700. E-Mail: UMBook@maine.maine.edu.

Textbook refunds are allowed regardless of reason during the first 15 days of classes in the Fall and Spring semesters. All other merchandise except items sold as nonrefundable may be returned for a full refund if returned with a sales slip within 10 days of purchase. All merchandise must be in resaleable or in new condition, unmarked

and clean. The Bookstore reserves the right to make judgement as to "new condition."

Among the services offered by the Bookstore:

General: Gift certificates, special-order books, film processing, college rings, and graduation apparel.

Used-Book Buy Backs: Used books in demand at the University of Maine are bought back at one-half the new list price. Books no longer in use at the University of Maine or those which the Bookstore is overstocked on are bought back at the current national wholesale price.

Located on the second floor of the Memorial Union:

Newscounter: This convenient corner store is available for your shopping pleasure. Beverages, snacks, candy, local and out-of-town newspapers, magazines, cards, and sundries are among the items carried.

U.S. Postal Substation: Stamps, Money Orders, Express Mail, Parcel Post, most services of the Post Office.

Check Cashing Service: At the Post Office you may cash personal checks up to \$100.00 with I.D.. University checks, payroll checks, and government checks are also cashed with I.D. (75-cent fee). Sorry, no two-party checks accepted.

OFFICE OF SERVICES FOR STUDENTS WITH DISABILITIES (ONWARD PROGRAM)

The Counselor/Coordinator of Services for Students with Disabilities facilitates the education of students with physical, learning, and emotional disabilities by providing a point of coordination for any special services they may need while attending the University of Maine.

Some of the services provided or coordinated for students with disabilities are advising, special orientation to campus, readers, recorders, the ordering of taped texts, classroom relocation, priority registration, mediation and advocacy, classroom accommodations, as well as personal, educational, and vocational counseling. Students believed to be learning disabled without documentation can be screened through this office and referred for assessment to outside private psychologists.

Accommodation Procedure for Students with Disabilities

Students with disabilities have *two options* when making requests for academic accommodation. Requests are made to either the Coordinator of Services for Students with Disabilities at the Onward Program, or to the faculty member teaching the student's class.

Option One

Student who request accommodation through the Coordinator of Services for Students with Disabilities at the Onward Program, completes the following procedure each semester. There is no such thing as a "standing letter of accommodation." The process of providing accommodations involves each specific course and changing needs, thus requires review on a semester-by-semester basis.

1. Call to make an appointment to see Ann Smith, Coordinator of Services for Students with Disabilities. Voice (207) 581-2319, TDD (207) 581-2311.
2. Provide current appropriate documentation of disability and accommodation need from a qualified medical or other licensed professional evaluator if disability is not readily apparent. (See L.D. Documentation Guidelines.)
3. Bring to the appointment class schedule and the names of professors.
4. If the student is qualified, and the accommodation deemed appropriate using criteria from the University of Maine Policy on Accommodations, then a request form is completed by the student

and Disability Services will prepare a letter for working with that student. The student will be asked to sign a release form for all accommodation letters requested. *No letters will be made available until the accommodation request is completed.*

5. Unless otherwise arranged, letters of accommodation will be held at the Onward Building for the student to pick up and deliver to his/her professors. This allows the professor to meet with the student and discuss any accommodation arrangements. In some cases, letters will be mailed to professors but this is the exception and needs to be requested by the student.
6. The professor has final responsibility for an accommodation provision. If a formally requested accommodation from the Onward Program is not provided by the professor, then it is the student's responsibility to bring this to the Coordinator's attention for further advocacy.

Option Two

Student requests accommodation directly from professor of his/her class.

Request granted without intervention from the Coordinator of Services for Students with Disabilities at the Onward program. For example, a student may request to tape record class lectures. Many professors have no difficulty with such a request and grant it immediately.

Or

Professor refers student to Coordinator of Services for Students with Disabilities for:

1. Verification of disability
2. Accommodation request letter
3. Exploration of accommodation alternatives. Student follows procedure as outlined in Option 1.

Accommodation Policy for Students with Disabilities

It is the policy and practice of the University of Maine to comply with the Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and state and local requirements regarding students with disabilities. Under these laws, no qualified individual with a disability shall be denied access to or participation in services or programs at UMaine.

In compliance with federal and state regulations, reasonable accommodations are provided to qualified students with disabilities. A qualified individual is a person who, with or without reasonable accommodations, can perform the essential functions of a program or course requirements. The essential requirements of an academic course or program need not be modified to accommodate an individual with a disability.

The University has designated Student Disability Services located in the Onward Building, as the office which coordinates services for students with disabilities, as part of the continuing effort to make the campus accessible.

Final responsibility for selection of the most appropriate accommodation rests with the University and is determined on an individual case by case basis, based on the nature of the course or program and the nature of the student's disability.

Students are encouraged to meet with the Coordinator of Services for Students with Disabilities to develop a plan for their academic accommodations. A request for accommodation is deemed reasonable if it:

1. is based on documented individual needs in all cases of non-apparent disability
 2. allows the most integrated experience possible
- AND
3. does not compromise essential requirements of a course or program
 4. does not pose a threat to personal or public safety
 5. does not impose undue financial or administrative burden
 6. is not of a personal nature (ex. paying for personal care attendant, eyeglasses, etc.)

It is the student's responsibility in the accommodation process to:

1. follow the University of Maine accommodation procedure for students with disabilities
2. identify self as having a disability to Onward's Services for Students with Disabilities, or to faculty, or staff when the disability is not readily apparent
3. provide at the student's expense, current appropriate documentation of disability and accommodation need from a qualified medical or other licensed professional. (See Learning Disabilities Documentation Guidelines.); (To be kept in confidential file separate from student's academic files)
4. request a specific accommodation or services.

For further information, please contact Ann Smith, Coordinator of Services for Students With Disabilities, 5757 Onward Building, University of Maine, Orono, ME 04469-5757. Phone (207) 581-2319, TDD (207) 581-2311.

OFFICE OF INTERNATIONAL PROGRAMS (OIP)

The Office of International Programs (OIP), has primary responsibility for coordinating UMaine international academic, research and outreach initiatives, activities and programs. The OIP fosters and supports international education on campus, and strives to promote international understanding and global awareness.

The Office of International Programs is responsible for: recruitment and admission of undergraduate and transfer international students; establishing and coordinating successful exchange and study abroad programs which are curriculum-driven as well as offer a global experience; immigration processing and advising (I-20 and IAP-66); the University's Exchange Visitor program; student orientation, support and advising; with academic departments, promoting and supporting internationalization of the curriculum; sponsoring activities, seminars, and programs to promote international awareness; raising international and global awareness in the community through outreach programs.

UMaine students interested in studying abroad for a semester or longer should read the "Study Abroad" section elsewhere in this catalog. Refer to Index for page location.

International student support includes cultural and academic advising, various social activities, trips, and a weekly coffee hour. There is an active International Student Association. There are a limited number of tuition waivers for academically talented international students. The office also provides support to faculty. Call (207) 581-2905 for additional information.

THE MAINE CAMPUS

The award-winning *The Maine Campus* newspaper is published Mondays, Wednesdays and Fridays throughout the school year in Chadbourne Hall. It is written, edited, and produced entirely by University of Maine students. The newspaper offers students valuable experience in writing and reporting, editing, graphics, photography, and advertising sales and design. Students, regardless of their majors, are invited to join the staff and also to use the newspaper as a forum through which to express their opinions through letters to the editor. For further information, call (207) 581-1271.

MAINE REVIEW

The Maine Review is the University of Maine's annual literary magazine. It publishes fiction, non-fiction, poetry, and artwork by University students. Student staff members and volunteers combine to produce a quality magazine. The editor is elected annually and all students are encouraged to participate. *The Maine Review* not only offers student writers the opportunity to publish their work but also offers students valuable magazine publishing experience. Inquiries

about submissions may be made through the English Department Office, Room 304, Neville Hall.

PRISM YEARBOOK

The *PRISM* yearbook documents the school year at the University of Maine. Featured in the yearbook are campus events, arts and music, sports, and student life. Senior portraits are arranged each year by *PRISM* staff and sittings are provided free of charge for all graduating students.

In recent years production of UMaine's yearbook has been advised by a representative of the General Alumni Association. An editor and business manager, who form the senior staff hired each year, hire the support staff of photographers, designers, and writers. Work-study students are encouraged to apply for these positions. Volunteers are also needed.

The *PRISM* office is located in Chadbourne Hall within the ASAP area. Call (207) 581-1783 for additional information.

ATHLETICS AND RECREATION

Through the Department of Athletics and Recreation, the University offers programs in recreation and competitive intramural and intercollegiate sports. Because these activities are recognized as an integral part of the educational process, the University supports them with a professional staff, equipment, and facilities. These programs are to promote education leadership, physical fitness, an opportunity for recreational pursuit, and athletic excellence through competition. Students are offered an equal opportunity for participation and achievement.

INTERCOLLEGIATE ATHLETICS

The University of Maine is the state's only NCAA Division I institution (football is Division I-AA). With 19 varsity sports offered,

UMaine hosts the highest caliber of intercollegiate athletic competition available in the state of Maine. The University's conference membership includes the Yankee Conference, Hockey East, and America East. The 19 varsity sports offered are: baseball, men's basketball, women's basketball, men's cross-country, women's cross-country, field hockey, football, men's golf, men's ice hockey, women's ice hockey, men's soccer, women's soccer, softball, men's swimming, women's swimming, men's indoor track, women's indoor track, men's outdoor track, and women's outdoor track.

RECREATIONAL SPORTS PROGRAMS

Intramurals

The University sponsors approximately 65 intramural programs for both men and women students. Some of these programs are strictly single sex, while others are coeducational. The main objectives of the program are to promote organized activities in an atmosphere of fair play, while encouraging physical fitness, health and safety for the entire student body.

Sport Clubs

There are a variety of Sport Clubs activities on the University of Maine campus. All clubs are open to University students, faculty, and staff. Sports Clubs provide an opportunity for participation to learn new skills, polish old ones, or compete at the collegiate level. Current clubs include cycling, Aikido, men's and women's lacrosse, men's rugby, ultimate frisbee, volleyball, wrestling, Blade Society, karate, mountain biking, and nordic skiing.

Further information can be obtained at room 142B Memorial Gymnasium, (207) 581-3054.

Time and facilities are also available for recreational free play, with various types of sports equipment available to rent (e.g. rackets, balls, nets, standards).

ACADEMIC INFORMATION

QUESTIONS ON POLICY

Policies set forth in this publication provide specific guidance for students at the University of Maine. It is the responsibility of each student to be familiar with policies which govern his or her course of study and to ascertain and fulfill all academic requirements to achieve his or her educational objective. It is the responsibility of the faculty and staff to advise and assist the student in this effort. Questions concerning material in this catalog should be directed to the student's academic advisor or to the student's academic dean or program director.

ACADEMIC REQUIREMENTS

Students must meet the specific academic requirements in the University catalog in effect at the time of their initial matriculation. If a student is absent from the University for two or more years, the academic requirements in the catalog in effect at the time of re-matriculation will normally apply.

ACADEMIC INTEGRITY

Students of the university are expected to be honest and forthright in their academic endeavors. To falsify the results of one's research, to steal the words or ideas of another, or to cheat on an examination corrupts the essential process by which knowledge is advanced. Such plagiarism, the submission of another's work as one's own without adequate attribution, and cheating are violations of the University of Maine Student Conduct Code. Although disciplinary action taken under this code is independent of the awarding of grades (an academic matter) and provisions of this code cannot be used for changing awarded grades, an instructor who has probable cause or reason to believe that a student has cheated may act upon such evidence. This may include dropping the student from the course with an assigned grade of E. Should the instructor elect this option, that decision should be communicated in writing to the Office of Student Records within two weeks of the time the offense is discovered. The student may not circumvent such action by dropping the course either before or after the failing grade is submitted, regardless of the drop policy in effect at that point in the semester. The grade will be considered to be effective from the date and time when the offense occurred, not from the date when the Office of Student Records receives formal notification. The student may appeal the E grade through the Academic Appeal Procedure. The instructor may, either in addition to or in place of a failing grade, refer the case to the department chairperson, the academic dean, or the Conduct Officer for appropriate disciplinary action. The maximum possible sanction which may be imposed, and which will necessarily depend on the degree of seriousness of the case, is dismissal from the University.

REGISTRATION

Undergraduates at the University of Maine will register in accordance with the following procedures:

IMMUNIZATION LAW

The State of Maine requires all students born after 1956 to furnish proof of immunization against measles, rubella, tetanus, and diphtheria. Proof of immunization must be on file at Cutler Health Center prior to registration. Students should forward proof of immunization to Cutler Health Center as soon as possible after notification of admission.

FIRST-YEAR STUDENTS

All first-year students are encouraged to attend orientation sessions. The dates of these sessions will be furnished to new students. Registration for the fall semester occurs during the summer orientation period in consultation with representatives from the faculty.

UPPERCLASS STUDENTS

Upperclass students who transfer to the University of Maine will contact the dean's office of their college after admission to register for the upcoming semester.

All currently active students who plan to return to UMaine will meet with their advisors.

Academic advisors are assigned to all students to assist in planning their educational programs, to ensure they are meeting graduation requirements, to provide counsel and guidance in academic work, and to advise with study or classwork problems. Each student is, however, ultimately responsible for satisfying degree requirements.

Classification by Level

Students must have 23 earned credits for classification as a sophomore, 53 earned credits for a junior classification, and 83 earned credits for senior classification.

FULL-TIME STATUS

Undergraduate: Undergraduate students registered for twelve (12) or more semester hours of credit are classified as full-time students.

Graduate: Graduate students registered for six (6) or more semester hours of credit or thesis work during the fall or spring semester or one (1) credit hour during any summer session are classified as full-time students. Graduate students registered for a minimum for three (3) credit hours in the fall or spring semesters are considered half-time students. Students registered in approved internship placements, e.g., psychology clinical internships, may maintain full-time status by registering for one (1) credit hour. Thesis credit also maintains full-time status.

Students are advised that failure to maintain the appropriate credit load for full-time status may jeopardize eligibility for financial aid, athletic eligibility, veteran's benefits and campus housing.

REDUCED COURSE LOAD

It is the policy and practice of the University of Maine to comply with the Americans with Disabilities Act (ADA), and Section 504 of the Rehabilitation Act of 1973. These laws clearly mandate the Institution's obligation to provide academic adjustments as a means of accommodating students with disabilities.

The University of Maine has established full-time student status as twelve credit hours per semester for undergraduate and six credit hours for graduate students. Upon recommendation by the University of Maine Coordinator of Services for Students with Disabilities, and the Special Student Services Advisory Committee, and upon approval by the Vice President for Academic Affairs and Provost (or designee), undergraduate students requesting reasonable accommodation for a documented disability who register for fewer than twelve hours of academic credit per semester but no fewer than six hours will be granted the full rights and privileges of full-time student. Students who are granted reduced course load status will be assessed mandatory fees in accordance with University policy. In some cases, receipt of particular benefits are contingent upon

payment of appropriate fees. Appropriate credit load per semester for graduate students will be reviewed on a case-by-case basis.

Students requesting this accommodation must provide current comprehensive evidence of a documented disability from a health care or psycho-educational professional, as well as a copy of their academic records from institutions they attended prior to enrolling at the University of Maine. The Coordinator of Services for Students with Disabilities will organize and oversee all procedures relating to this policy and will provide a written annual report on the implementation of this policy to the Vice President for Academic Affairs and Provost.

NON-DEGREE STUDENTS

A person wishing to take course work at the University of Maine while not being admitted to a specific degree program is a non-degree student. These students, in most cases, write or visit the Division of Lifelong Learning's, Continuing Education/Summer Session Office in Chadbourne Hall to become registered on a space-available basis. These students will register during the normal CED/SS registration period. There are some exceptions, however.

- **Category I.** Students who have a degree but are pursuing a certificate (e.g., teaching, professional) will be advised by the appropriate college faculty and registered in that college.
- **Category II.** Students who are degree students elsewhere but are attending the university under a bona fide student-exchange program (e.g., National Student Exchange, Canadian-American Exchange, New England Land-Grant University Student Exchange) will be registered and advised by the appropriate college.

Financial Aid Considerations: Financial aid is normally not awarded to non-degree students at the University of Maine.

Campus Living Considerations: Campus living allows any full-time student the opportunity to secure campus housing. Non-degree full-time students have lower priority than full time degree students.

PROVISIONAL DEGREE STUDENTS

Students who have been suspended or dismissed may be allowed to register (usually to repeat courses) and prove their capability to handle the academic work required to stay in school. Since these students are in a provisional program of study, they will be listed in a "provisional degree status" rather than as a non-degree student. They will be provisionally readmitted to the college from which they were suspended or dismissed and advised accordingly. These students will be given a major designation of "PDE" indicating provisional degree status. The degree is coded as "BA" or "BS" as is appropriate to the student's program.

ADDRESS CHANGES

Students are required to report their correct address at the time of registration or as soon thereafter as it is known. Any changes of address must be reported to the Office of Student Records. The address should be the student's *actual place of residence*. If the mailing address is different, it should also be reported to the Office of Student Records, Room 100 Wingate Hall, (207) 581-1290.

COURSE NUMBERING SYSTEM

Courses numbered 000-099: Courses not applicable toward a baccalaureate degree.

Courses numbered 100-299: Lower level baccalaureate degree.

Courses numbered 300-399: (junior/senior) baccalaureate degree.

Courses numbered 400-499: Upper level baccalaureate degree (may be taken for graduate credit with appropriate qualification and permission).

Courses numbered 500-599: Graduate level (may be taken for undergraduate credit with appropriate qualification and permission).

Courses numbered 600-699: Graduate level.

COURSES

ATTENDANCE

Every student is to accept the responsibility for satisfactory attendance in courses. Satisfactory attendance is determined in each course by the instructor, who will inform the student at the first class meeting of the attendance requirements.

Whenever in the opinion of the instructor, a student's absence impairs the quality of her/his work, the instructor shall report this fact to the student's dean.

Excessive absences may be considered sufficient cause for requiring a student to drop a course or to withdraw from the university.

Students engaged in an off-campus authorized official function of the university, (e.g., varsity athletics, band, drama, etc.) should talk directly with the course instructor to arrange for making up the work missed. The students may obtain absence slips from their academic deans. When presented with the signed absence slip, an instructor is to provide the student with the opportunity to make up work missed. The individual responsible for the activity is to provide the dean's office, at least one week in advance, a list of students authorized to absent on a specified date(s). Normally, students coordinate such absences directly with the instructor.

ADD AND DROP

An addition of a course, change of a section of a course, or a change in credit status can be made to a student's schedule through the first five class days of each semester. A course must be dropped by the tenth day to receive a refund.

During the *first third* of the semester, a student may drop courses without academic penalty. All such dropped courses are deleted from the student's academic record.

During the *second third* of the semester, a student may withdraw from a course if the student's advisor and dean approve. Courses dropped will show on the student's academic record, with grade of "W". The grade will not be computed into the semester average.

During the *final third* of the semester, any courses dropped will normally carry a grade of "WE", unless extenuating circumstances prevail. This grade will show on the student's academic record and will be computed into the semester average.

AUDIT OPTION

A regularly enrolled student who wishes to attend a course as an auditor should select the AUDIT option when registering. Normally, an audit registration means no exams or papers are required by the instructor. Tuition is charged for audited courses at the usual hourly rate. Grades, quality points, and degree credit are not assigned when courses are audited. After the regular add-and-drop period, an audited course cannot be changed to a credit status course taken for credit may be changed to audit during the first one-third of the semester. During the second third of the semester a student may change to audit provided the student's advisor and dean approve.

CLASS MEETING/CANCELLATIONS

Classes usually are not canceled because of inclement weather. Should they be, announcements will be made over the greater Bangor-Orono area's television/radio stations. Information about the University's class schedule during inclement weather can be obtained by calling 1-800-581-SNOW.

CONTINUING EDUCATION

While courses offered through Continuing Education (CED) designed for students who can attend the University only on a part time and evening basis, all other students may register for these

courses during the first week of the semester providing there are openings in the sections(s). A complete listing of courses offered through CED will be available in the CED Office, Division of Lifelong Learning, 5713 Chadbourne Hall, Room 122. Students are encouraged to check with the CED Office by IVR phone (207) 581-MAIN, to see if there are openings. If there are, the student must secure permission from his/her advisor and dean on a department add/drop form; attend the first class; and, return to the CED Office the next day to be registered.

MINIMUM COURSE ENROLLMENTS

Courses whose enrollment falls below the following minimums are usually cancelled:

- 100- and 200-level courses - 12 students
- 300- and 400-level courses - 8 students
- 500- and 600-level courses - 4 students

Exceptions must be approved by the dean of the college and discussed with the Vice President for Academic Affairs and Provost. Departments have the option of applying for permanent exemption from some courses with traditionally low enrollment. If a course has not been taught in three years, it should be eliminated.

COURSE REPEAT POLICY (UNDERGRADUATE ONLY)

When a course taken for credit is repeated, only the most recent grade will be used in the computation of the student's accumulative grade-point average. This practice will be followed even if the most recent grade is lower than the previously received grade for that course. The grades for all attempts of a course taken for credit will appear on the student's transcript.

A course may be repeated regardless of the grade or grades previously earned in that course.

Credit for a given course may be earned only once. Previously earned credit will be removed if the course being repeated is failed.

There may be limitations to the number of times that specific courses may be repeated. Students should contact the college dean with any questions about such limitations.

In rare instances, (e.g., Laboratory course), a four-hour course may be offset, respectively, by a three-hour course utilizing the course-repeat procedure.

In rare instances, a course taken at another institution may offset a UMaine course utilizing the course-repeat procedure. Advance approval will be necessary for such action.

PROBLEMS COURSES

Field experience, practica, and independent study (readings, etc.) are normally taken in the student's major. Problems courses, practica, and independent study courses *outside* the student's major, and especially outside the student's college, require special prior permission from his or her academic advisor and dean.

MILITARY SCIENCE

Students do not receive degree credit for military science courses (Army or Navy ROTC) until they are in their junior year. (A maximum of 10 hours of advanced level military science courses may count towards the 120 degree hour requirement for the B.A. Degree).

GRADING SYSTEM

Letter grades on a scale of A to E are given by faculty at the university. Faculty may grant plus and minus grades. These letter grades carry the following numerical values:

- A = 4.00; A- = 3.67
- B+ = 3.33; B = 3.00; B- = 2.67
- C+ = 2.33; C = 2.00; C- = 1.67
- D+ = 1.33; D = 1.00; D- = 0.67
- E = 0.00

Undergraduate Passing grades:

A, Excellent B, Good; C, Satisfactory; D, Low-level passing, below average required for graduation; P, Passed (for pass/fail course)

Graduate Passing grades:

A, Excellent B, Good; C, Satisfactory; ACC, Acceptable (graduate thesis only).

Failing grades:

E, Failed F, Failed (for pass/fail course; not included in grade point average); L, Stopped attending (computed as an "E"); WE, withdrew failing (computed as an "E").

Progress grades:

T, final grade deferred (undergraduate thesis only); DG, deferred grade (for multiple semester courses); R, final grade deferred (graduate thesis only).

Non-credit grades:

W, withdrew passing (formerly "WP")
H, Audited.

Missing Grades:

MG, no grade submitted by instructor.

Incomplete Grades:

I. The Incomplete grade indicates that the decision on a final course grade has been postponed because work ordinarily expected to be completed by the end of the semester has not been finished as the result of circumstances beyond the control of the student. When used, the grade must be accompanied by an estimate of the likely course grade upon completion of all requirements: for example, a grade would be reported as "I" (probable C).

When the "I" grade is awarded, the faculty member awarding the grade must file a written statement (using the Incomplete Grade Authorization form), and including:

1. A written statement from the student explaining the extenuating circumstances which justify the "I" grade;
2. The specific conditions that must be met in order to complete the course requirements and have the "I" replaced by a regular grade;
3. The length of time (within the parameters defined below) in which the student is allowed to complete all requirements.

The Incomplete Grade Authorization form should be returned to the appropriate Dean's office.

The "I" grade must be made up within the time limit specified in writing by the faculty member. For a grade of incomplete, the work must be done and the grade filed by the tenth week of the next full semester. Incomplete grades received during the summer session must be completed during the next academic session (FALL TERM). Exceptions to this rule must be approved by the faculty member, the chairperson or school director and associate dean of the specific college involved. In all cases the incomplete work must be finished within one year of the end of the semester in which the course was taken. If the incomplete is not made up within the time allotted by the faculty member, the grade will automatically be changed to an "E." *Students receiving an "I" grade are not allowed to re-register for the course until the incomplete has been made up or converted to an "E."*

A student may graduate with a "I" on the academic transcript providing:

1. the course was taken within one academic year preceding graduation;
2. the student has at least 120 credits of graded work
3. all college and department requirements have been satisfied
4. the incomplete, when counted as an "E," does not reduce the accumulated grade point average below the minimum required for graduation.

No incomplete grade allowed to remain on the record at the time of graduation will subsequently be replaced on the original record. If the incomplete work is made up following graduation within the regularly allowable time period, the grade(s) will be noted at the end of the transcript and will not affect the grade point average which was in effect at the time of graduation.

Degree hours: the sum of the course credit hours of courses which may be counted toward a degree, provided a passing grade has been received.

Accumulative average: quality points divided by GPA hours, carried to two decimal points. Quality points are the number of credit hours taken multiplied by the numerical value of the letter grade. The GPA hours are the sum of the course credit hours from all courses taken except those taken on a Pass-Fail basis. Pass-Fail registrations do not affect the grade point average.

PASS/FAIL

It is possible to take some courses on a pass/fail basis under the following conditions: (1) Students must have sophomore standing or higher and have a grade point average of at least 2.0; (2) a student may not take more than one course a semester on a pass/fail basis; (3) a course taken on a pass/fail basis may not be used to fulfill requirements set by the student's academic unit (other than total hours required for graduation); (4) pass grades will not be used in computing grade point averages but will be counted toward degree credit (a failing grade although recorded as an "F", will not be figured in the student's accumulative grade point average); (5) a student must indicate when registering for the course that he/she is taking it on a pass/fail basis. A student cannot convert from the pass/fail basis to standard letter grading or vice versa after the first two weeks of a semester.

GRADE REPORTS

Final grades are available as they are received and processed after exams. Students may access grades in campus computer clusters or by calling (207) 581-MAIN.

Considerable care is taken to ensure that all grades entered on a student's permanent record are accurate. Any student who suspects an error in a grade should contact the instructor without delay. Records are considered to be correct if a student does not report errors to the Office of Student Records within six months of the completion of a course.

MID-SEMESTER PROGRESS REPORTS

At the middle of each semester, Mid-semester Progress Reports are produced for all first-year students. The symbols used are:

- S - Satisfactory
- M - Marginal
- U - Unsatisfactory
- I - Incomplete

These reports are used to assist the student in solving academic difficulties, if any, through counsel and advice.

EXAMINATIONS

During each semester two to four preliminary examinations are usually administered in every course. These "prelims" count heavily on the final grade. At the end of each semester final examinations are held in most courses. The final examination should count no more than one-third of the course grade, although exceptions may be made by the instructor on consultation with the chairperson of the department in which the course is offered. Final examinations are held according to a published schedule and cannot be taken before the scheduled time. Students who are scheduled for more than three final examinations in one day may have an examination rescheduled through the Office of Student Records.

Instructors are requested to announce to their respective classes at or near the last recitation period the time and place of each final examination. A student who misses the regular examination at the end of a semester for a legitimate reason should make arrangements with the instructor to make up the examination.

No examinations of any kind may be scheduled during the last week of classes, except by permission of the appropriate Associate Dean or Director. A final examination may be scheduled only during final exam week. If a final is not planned, and the instructor wishes to schedule a prelim covering the last weeks of the course, this prelim

must be given during final exam week. These rules do not apply to CED courses.

ATHLETIC EVENTS DURING FINAL EXAMINATION PERIOD

The University of Maine will not schedule athletic events during final examination periods in December and May. Participation of UMaine teams in post-season tournaments during examination week shall be determined by the President in consultation with the Vice President for Academic Affairs and Provost.

ACADEMIC APPEAL PROCEDURE

When a student has reason to question an academic process or result, the following procedure shall apply:

CHEATING AND PLAGIARISM

1. The student should discuss the concern with the appropriate faculty member.
2. If the concern persists, the student may consult with the chairperson of the department (or the dean of the college if there are no departments) who attempts to resolve the complaint.
3. Failing this, the faculty member may bring the complaint before the conduct officer under the provision of Section V.A. of the Student Conduct Code. The student may appeal any disciplinary sanction imposed by the conduct officer to the Conduct Committee under Section V.C. of the Code.

PROBLEMS OF CLASSROOM PROCEDURE

1. If a student alleges the guidelines for class procedure have not been followed and the student has been harmed in some way, that student should discuss the concern with the appropriate faculty member.
2. If the concern persists, the student may consult with the chairperson of the department (or the dean of the college if there are no departments) who attempts to resolve the complaint.
3. Failing this, the student may write to the dean of the college when the course is offered requesting a review of the situation.
4. Following this, and if there is lingering dissatisfaction on the part of the student; the student may make a final appeal in writing to the Vice President for Academic Affairs and Provost.

EVALUATION OF WORK AND GRADES

1. If a dispute arises over a grade or evaluation of a paper or work, the student should discuss the concern with the appropriate faculty member.
2. If the concern persists, the student may consult with the chairperson of the department (or the dean of the college if there are no departments) who attempts to resolve the complaint.
3. Failing this, the student may request the use of a departmental ad hoc committee composed of three members: (1) faculty member chosen by student; (2) faculty member chosen by the involved faculty member; (3) faculty member chosen by the department chairperson with the agreement of student and involved faculty member. Both the student and faculty member will prepare a written brief and appear before the committee. Any witnesses desired by either person may be called. The student and/or the faculty member may be represented by a person of their own choosing, such person being acceptable to the committee.
4. If the student is not satisfied with the committee decision, he or she may write to the dean of the college where the course is offered requesting a review of the situation. If the appeal concerns the awarding of an E grade as a consequence of cheating or plagiarism, and if the departmental committee declines to support the instructor's accusation of cheating, the Dean has the discretionary authority retroactively to drop the student from the course in question without penalty and to recommend a corresponding tuition credit or refund.

Following the review by the dean, and if there is lingering dissatisfaction on the part of the student, the student may make a final appeal in writing to the Vice President for Academic Affairs and Provost. However, the faculty member has the ultimate responsibility for determination of grades.

The foregoing steps must be made in order of progression and information, recommendations, and decisions made available to next level of appeal. Maximum efforts and attempts should be exerted toward resolution of concerns without the necessity of appeal.

DEAN'S LIST REQUIREMENTS

12 or more hours in a semester exclusive of pass-fail and without any incompletes.

Grade point averages as follows:

Business, Public Policy and Health	3.00
Education and Human Development	3.30
Engineering	3.30
Lifelong Learning	3.30
Liberal Arts and Sciences	3.30
Natural Sciences, Forestry and Agriculture	3.30
Onward	3.00

PRESIDENTIAL ACHIEVEMENT PIN

The University recognizes sustained academic achievement with the Presidential Achievement Pin. Full-time and part-time students who meet the following criteria are eligible for this award. The award may only be granted once per student. The following categories must be fulfilled:

FULL-TIME STUDENTS

Attainment of a 3.0 GPA or better based on two consecutive full-time semesters (a minimum of 24 credit hours) of accumulated UMaine course work and attainment of a 3.5 GPA or better for the last semester—minimum of 12 credit hours. Only graded work counts toward the 24 credit hours (Pass/Fail courses do not count). Incomplete grades within the two semester time frame disqualify the student.

PART-TIME STUDENTS

Attainment of a 3.0 GPA or better based on 30 credit hours of accumulated UMaine course work and attainment of a 3.5 GPA or better for the last 12 credit hours. Only graded work counts toward the 30 credit hours (Pass/Fail courses do not count). Incomplete grades within the last 30 credit hour time frame disqualify the student.

GRADUATION

Candidates for baccalaureate degrees must: (a) receive passing grades in all courses required by the major department, (b) accumulate the number of degree hours specified by the program in which the student is registered, and (c) achieve an accumulative average of not less than 2.0 in University of Maine courses.

A minimum residence of 30 credits is required for the attainment of any bachelor's degree. This regulation refers to the senior year. Two exceptions to this regulation were approved by the Trustees in 1978:

Exceptions may be made for students who have already completed three or more years at the University of Maine who may be given permission by their academic dean, when there is sufficient and valid reason, to complete the senior year elsewhere under the general supervision of their dean's office.

Students who have completed a minimum of three years of work at the University of Maine and who have been admitted to an accredited professional school of medicine, dentistry, veterinary medicine,

or divinity may qualify for the appropriate bachelor's degree at the University of Maine upon receipt of the professional degree, provided that their collegiate dean at the University of Maine approves. This policy is retroactive. Inquiries about degrees awarded under this exception should be addressed to the Director of Student Records.

DOUBLE DEGREES

Students who have taken sufficient courses outside of their primary major to qualify for a second degree must have at least 150 degree hours prior to the award of the second degree if they are in one of the colleges that require 120 hours for graduation. Students in college which require more than 120 hours for graduation must have 30 hours beyond their normal degree requirements to be awarded a double degree.

DOUBLE MAJORS

Double majors are permitted between most disciplines at the University of Maine. The requirements for meeting the double major state that a student must meet all requirements of two separate and distinct disciplines. Students also may obtain a double degree across colleges by satisfying the requirements for both colleges and majors. Students intending to become candidates for double majors or degrees across colleges must declare their intent to the dean of both colleges no later than the beginning of their junior year.

GENERAL EDUCATION REQUIREMENTS

Since September 1995, all students initiating a baccalaureate program at the University of Maine have been required to meet certain general education requirements. These requirements will be phased in for transfer students according to the following schedule: the requirements will apply to transfer students with up to 23 credits in Fall 1995, up to 53 credits in Fall 1996, up to 83 credits in Fall 1997 and to all transfer students in Fall 1998. Additional general requirements may be imposed by individual colleges, and each academic major imposes requirements specific to that area.

Science

Students are required to complete two courses in the physical or biological sciences. This may be accomplished in two ways:

1. By completing two courses with laboratories in the basic or applied sciences;
2. By completing one laboratory course in the basic or applied sciences, and a second approved course that incorporates a laboratory experience and stresses the applications of scientific knowledge.

Human Values and Social Context

Students are required to complete 18 credits in this broad area, selected from lists of approved courses to satisfy each of the five sub-categories listed. (Courses that satisfy requirements in more than one sub-category may be counted in each appropriate sub-category.)

1. Western cultural tradition
2. Social context and institutions
3. Cultural diversity and international perspectives
4. Population and the environment
5. Artistic and creative expression

Mathematics

Students are required to complete at least six credit hours in mathematics, including statistics and computer science. No more than three of the six credit hours may be in computer science.

Demonstrated Writing Competency

Students are required to write throughout their academic careers and must demonstrate competency both at the introductory

level and within their majors. To fulfill this requirement, students must:

1. Complete ENG 101, College Composition, with a grade of C or better, or be excused from this course on the basis of a placement exam.
2. Complete at least two writing-intensive courses, at least one of which must be within the academic major.

Ethics

Students are required to take a course or a series of courses placing substantial emphasis on discussion of ethical issues.

Senior Capstone Experience

Students are required to complete an approved capstone experience within the major. The approved experience must be one in which the student draws upon and integrates the formal components of his or her undergraduate experience to perform at a professional level. Normally, the Capstone would conclude at the end of the student's senior year. Students should consult closely with their academic advisor to explore the range of options available for meeting this requirement.

For complete listing of courses satisfying General Education Requirements, see page 184. The listing is also accessible on the World Wide Web, <http://www.records.ume.maine.edu>. Complete instructions are found on page 183.

LATIN HONORS, HONORS

Degrees with latin honors are conferred at commencement for the following attainments of rank:

summa cum laude: 3.70 GPA or the top 5 percent of graduates within each college.

magna cum laude: 3.5 GPA or the top 10 percent of graduates within each college.

cum laude: 3.3 GPA or the top 20 percent of graduates within each college.

These criteria state that the average grade is based on the student's work on the Orono campus and must include 60 hours or 50 percent of the total degree hours required in the student's program of study, whichever is greater.

Degrees with Honors, with High Honors, or with Highest Honors are awarded to seniors who successfully complete the Honors Program.

VALEDICTORIAN/SALUTATORIAN

From the graduating seniors at the May Commencement (comprised of degree candidates from May, the preceding December, and the following August), the two highest ranking baccalaureate degree candidates are designated class valedictorian (highest) and salutatorian (next highest). To be eligible for this honor a student must have completed at least 90 credits of University of Maine coursework exclusive of pass/fail or incomplete grades. All credits counting toward the baccalaureate degree must have been completed within the 8 years preceding the anticipated graduation date.

APPLICATION FOR GRADUATION

Candidates for degrees must submit an Application for Degree or Certificate Form and a check or money order in the amount of \$20.00 made payable to the University of Maine, to the Office of Student Records according to the following schedule:

- by October 1, for degrees to be awarded at the end of fall semester;
- by February 3, for degrees to be awarded at the end of spring semester;
- by February 3, for degrees to be awarded at the end of summer session.

Forms are available in the Office of Student Records or by Fax-to-Fax by dialing (207) 581-1285 and following the prompts.

A withdrawal period of up to two weeks before commencement day is provided to receive a refund for those students who find they will not complete the necessary degree requirements. A full refund will be given to those students withdrawing within that time period. Another Application for Degree or Certificate Form must be submitted prior to the next commencement. *Note: If completing requirements in May Term, you are an August degree candidate.*

GRADUATION TIMELINE

Final certification of degree completion will be done within each college according to the following timetable:

- December graduation: January 30
- May graduation: June 30
- August graduation: September 30

Each department or college (depending on usual practice) has the responsibility to notify any student who has applied for graduation but who is taken off the graduation list before the Office of Student Records notification is sent to that student.

CELEBRATION OF ACADEMIA

Participation of the faculty at Commencement is an important symbol in life of the Academy. The Celebration of Academia presentation at the May Commencement will be given by the latest recipient of the Distinguished Maine Professor Award. The presentation at the December Commencement will be given by the latest recipient of the Presidential Outstanding Teaching Award.

CHANGE OF MAJOR/MINOR/COLLEGE/ CONCENTRATION

Students wishing to change their major/minor/college/concentration should contact the dean of their college for procedure.

POLICY ON ESTABLISHING AND ADMINISTERING MINORS

1. Any college in the university may decide to offer its baccalaureate students the opportunity to have minors.
2. These minors can be offered by any department or college that provides minors in its area(s).
3. The requirements for a minor would be determined by the department in which the minor would reside, but must include at least hours.
4. Minors must be approved by the departments and colleges in which they are located as well as those departments and colleges allowing their students to obtain a minor.
5. Any proposal for a minor should be submitted to both the Dean, Council and the Program Development and Curriculum Committee (PDCC) for information purposes.

ACADEMIC STANDING

The Faculty Senate recommends the standards to determine which students are making satisfactory progress toward their degree. Those students not fulfilling academic requirements are placed on probation, suspended or dismissed. The Academic Standing Committee administers academic standing policies.

ACADEMIC PROBATION

The minimum acceptable accumulative grade point average needed for graduation is 2.0. Therefore anything less than 2.0 should serve as a warning to a student that such work will not permit graduation. A student will be placed on probation following a semester in which her or his accumulative grade point average falls below 2.0, and a student may be placed on probation following a semester in which he or she receives a semester grade point average less than 2.0.

A student on probation who does not improve her or his accumulative grade point average to a 2.0 may be continued on

probation. A student continued on academic probation will be required to meet certain conditions which will be defined by his or her college dean. These conditions will specify the level of course work and academic achievement required to be removed from probation.

ACADEMIC SUSPENSION

Academic suspension indicates that a student is separated from the University for one semester with return guaranteed upon filing an application for readmission. Suspension is the usual academic action when a student's performance in a single semester, when not on probation, is at or below 1.0 or when required courses have been failed with an otherwise satisfactory record.

ACADEMIC DISMISSAL

Academic dismissal indicates that a student is separated from the University for a minimum of one semester. Return is not guaranteed. A student must file an application for readmission. Students dismissed twice from the University are not ordinarily allowed to return. Dismissal is the usual action when a student fails to make normal progress toward graduation. Situations that lead to academic dismissal are:

First-semester new students or students on probation who receive a semester grade point average at or below 1.0;

Students continued on academic probation who fail to meet conditions as defined by the college dean;

Students readmitted following suspension or dismissal who show no improvement in their grade point average;

First-year students (0-23 hrs) with an accumulative average less than 1.50 at the end of the year, Sophomores (24-53 hrs) with an accumulative average of 1.7 or less. Juniors (54-83 hrs) with an accumulative average of 1.8 or less. Seniors (84+ hrs) with an accumulative average of 1.9 or less

Regulations under 4. apply also to transfer students.

An exception may be made for a student who has earned a semester average of at least 2.0 while on probation but has not achieved the required minimum.

PROVISIONAL DISMISSAL

First-semester students who are experiencing academic difficulties may be placed in a provisional dismissal status. This intermediate status requires the student to discuss her or his academic record with the dean of the college to determine whether the student will be placed on academic probation, suspension or dismissal.

ACADEMIC ACTIVITY DURING SUSPENSION/DISMISSAL

Students under dismissal or suspension may not register within the University of Maine System. Students under dismissal or suspension who register at other institutions should be aware that credit so obtained will not ordinarily be accepted by the University of Maine if and when the student is readmitted; however, students may take a course or courses with the prior approval of the dean of the college from which they have been dismissed or suspended.

TRANSCRIPT RE-EVALUATION

Once during a student's association with the university, after suspension, dismissal, provisional dismissal, changing college, entering a transition status, or withdrawal, the dean of the college in which he/she becomes enrolled may exclude from the calculation of the student's accumulative grade point average all grades received during one or more semester(s) immediately prior to suspension, provisional dismissal, dismissal, changing college, entering a transition status, or withdrawal.

In all cases above, the dean may waive required courses in

which passing grades were received, but the grade(s) and credit(s) for said courses will not count toward graduation, nor will they be included in the student's accumulative GPA.

2. A student with a five year minimum separation from the university and a minimum of 30 credits remaining for graduation has the option of reentering as an external transfer. Under this option the student's previous coursework at the university would remain on the transcript, but previous grades would not count, and the student would begin his or her new academic career with a new GPA. Courses for which the student received a grade below C- would not count for credit.
3. Any recommendation for deviation from the above transcript evaluation policies must be approved by the Committee on Academic Standing.

ACADEMIC STANDING APPEAL POLICY

For students wishing to appeal an academic action, the following process is available:

1. The student may appeal to the dean of her or his college. (The dean may request that this appeal be first presented in writing.)
2. If the decision of the college is unsatisfactory to the student, he or she may appeal in writing to the Vice President for Academic Affairs and Provost.

The decision of the Vice President or designee(s) is final.

All appeals must be initiated according to the guidelines stated by the college dean and/or prior to the first week of classes of the term (spring, summer, fall) immediately following the academic action.

TRANSFER POLICY

TRANSFER CREDIT, INCLUDING PRIOR LEARNING CREDIT

The University of Maine is committed to recognizing as much transfer credit as possible while applying the same quality standards used for admission and continuing academic progress. Although all credit awarded is recorded on transcripts, colleges and departments within the university may impose limitations on the applicability of some credit to degree requirements.

The evaluation of transfer credit, for both collegiate transfer credit and prior learning forms of study, is completed through the academic dean's office of the candidate's undergraduate college after admission to the university. Approved candidates will receive a tentative evaluation along with their letter of acceptance. Transfer credit evaluations are usually not performed for non-degree students.

Decisions about transfer course equivalency are made by the departments responsible for the academic subject matter at the University of Maine and are recognized by all UMaine departments and colleges. Exceptions to equivalencies (different equivalents, waivers of curricular requirements based on transfer credit, or limitations on transfer credit applied to degree requirements) may be allowed and recorded at the college or department level, but will not appear on the official evaluation or University of Maine transcript.

To qualify for the baccalaureate degree, all students who enter the University of Maine with transfer credit, or who have credit awarded from any external source during their UMaine enrollment, must earn a minimum of 30 hours in UMaine courses and pass ENG 101, or an approved equivalent, with a grade of "C" or better. Since September 1995, all undergraduate degree students have been required to meet general education requirements. These requirements have been phased in for transfer students according to the following schedule: the requirements will apply to students with up to 23 credits in Fall 1995, up to 53 credits in Fall 1996, up to 83 credits in Fall 1997, and to all students in Fall 1998. Transfer courses that have UMaine equivalents will fill the same general education categories as their UMaine equivalents, except for "writing intensive" courses. Students may request consideration of transfer courses for the writing intensive requirement by submitting to the associate dean materials (usually a syllabus) that document the class size of the original class,

the portion of the grade based on writing, and the opportunity to rewrite assignments. Transfer courses that do not have exact equivalents, but are awarded elective credit, may be reviewed for general education requirements by the student's associate dean. If the course title and description are insufficient to make the determination, the associate dean will request further materials from the student.

Individual colleges or departments may have more restrictive policies regarding credits in residence and other program requirements, which are described in the college or department sections of the catalog. In addition, agreements have been formalized with other institutions for the acceptance of degree credit which may modify the requirements above.

CREDIT FROM WITHIN THE UNIVERSITY OF MAINE SYSTEM

Credit earned with passing grades at any campus or through distance education, within the University of Maine System is accepted at the University of Maine. A few exceptions do exist, usually because of the determination that a particular course is not applicable to any UMaine program of study. Grades and grade point averages do not transfer. Credit earned with lower than "C" grades may need to be repeated (as with ENG 101) or used as electives.

CREDIT FROM REGIONALLY ACCREDITED INSTITUTIONS:

Credit from regionally accredited institutions with a letter grade of "C-" or above is usually accepted by all UMaine colleges. A few exceptions do exist, usually because of the determination that a particular course is not applicable to any UMaine program of study. Credit that is not directly applied to a degree program is listed as "General Elective" credit. Correspondence and distance education courses are treated equally with traditional classroom courses. Credit earned with a "C-" grade (as with ENG 101) may need to be repeated or used as an elective. Grades and grade point averages do not transfer. Official transcripts are required from every institution.

CREDIT FROM INTERNATIONAL INSTITUTIONS

Credit from international institutions, both for international students and for domestic students participating in study abroad programs, is accepted by the colleges based on recommendations from the Office of International Programs. The University of Maine awards credit to students who have earned the International Baccalaureate diploma and scored 5, 6, or 7 on the higher level examinations. Credit is granted through each dean's office. Grades and GPA do not transfer. Official transcripts and notarized translations of non-English originals are required.

PRIOR LEARNING CREDIT

Students present education, training and experience that they would like to have assessed to determine how much, if any, credit should be awarded. To assure that standards are maintained and that the process assures academic quality, a representative council, appointed by the provost, will be responsible for policy review and procedure development and monitoring. Credit may be awarded for demonstrated learning related to specific courses or to knowledge and skills incorporating a broad spectrum within a discipline.

Any matriculated student may petition for consideration of credit for prior learning. This should be done through consultation with the student's associate dean. Because of the nature of prior learning assessment, credit decisions cannot be made as quickly as traditional transfer credit. Departments usually assess an examination or evaluation fee.

Some Sources of Prior Learning Credit

Credit from institutions not regionally accredited: Submit to the college office an official transcript and as much other documentation as possible, such as course descriptions and syllabi.

Credit by national examination: CLEP and AP tests are most widely recognized (for UMaine policy regarding these tests, see the Admissions section of this catalog). Other tests may also be recognized (DANTES, PEP, etc.). If you have already taken the test, submit an official score report and as much information about the test as possible. If you are contemplating testing, please seek prior approval from your associate dean.

Credit by challenge examination: Students who show evidence of advanced knowledge may be exempt from certain courses and requirements if they pass examinations developed by the academic department.

Credit recommendations from American Council on Education (ACE) and National Program on Noncollegiate Sponsored Instruction (PONSI): Credit for military experience or corporate training programs will follow ACE or PONSI guidelines for upper-level baccalaureate credit, the majority of which will result in general elective credit only.

Work and Life Experience: Meet with a dean or department chair to discuss what credit may be possible, as well as appropriate means of assessment. Frequently the student will be asked to prepare a portfolio for review by an appropriate academic unit. Examples of materials that could be presented in a portfolio are authored publications, slides or recordings of media presentations, written documentation of life or work experience and its relevance to the degree program, or a combination of such materials. Portfolio review provides the most flexibility to the student and reviewer, but is also the most time consuming.

Applicants must arrange for official college transcripts to be forwarded from previously attended colleges and universities to the Office of Admissions, 5713 Chadbourne Hall, Orono, ME 04469. Student copies of academic transcripts are not accepted as official documents. Veterans must submit a transcript of Military Studies for possible transfer credit, Form DD295.

COOPERATIVE EDUCATION

Cooperative Education, Internship, and Field Experience at the University of Maine include numerous types of work/learning opportunities that relate to the student's academic major or program while complementing classroom theory. Cooperative education may provide a year or more of practical work experience on a full-time basis by alternating work semesters and classroom courses. This career-related work may also be completed while working part-time and taking other courses. Students are usually compensated by their employer, a practice which results in an important source of financial assistance. Internship and field experience are general terms applied to many forms of experiential learning which enhance the student's personal and career development.

All work-learning experiences are eligible for degree credit under the specific requirements of each academic department. To qualify for credit, the student must obtain approval from the department faculty coordinator who will review a job description, determine whether the nature of the work relates directly to the student's major, and the number of credits to be allowed. To officially register for credit, the student must register for a specific department work/learning course preferably prior to the start of the employment period. Most departments require junior or senior standing.

The student should plan to meet with a department faculty coordinator and the cooperative education and field experience coordinator for further information about the program and assistance in obtaining career-related employment. Students are referred to work/learning opportunities in industry, business, government or community service agencies. For assistance, contact the Career Center, 5713 Chadbourne Hall, Third Floor, Orono, ME 04469-5713, (207) 581-1359.

AWAY STATUS

When a student registers for study at another institution he/she will be placed on "Away Status" at the University of Maine, still

ally enrolled in his/her degree program. Academic degree credit will be transferred from the host institution according to policies set by the student's academic dean and the chair of the student's major department; such transferred credit is not normally calculated into the grade point average.

A student wishing to register for "Away Status" must be in good academic standing. To insure that the intended study will be appropriate to the student's overall academic program, the student must first discuss plans for study away with the dean and the academic advisor and obtain *prior approval* from both these individuals. Before a student pursues Summer Session courses in *any* institution (including UMaine), he/she must be in good academic standing *and* secure the prior approval of the dean and the chairperson of the student's major department *if the student expects* *credit* for such work. Course equivalencies for any study away would be determined *prior* to registration. All approval and registration forms are available in the deans offices.

ABSENCE FROM THE UNIVERSITY

LEAVE OF ABSENCE

Undergraduate students may request a leave of absence for up to two semesters providing that they return to the same college upon completion of the leave and are in good academic standing and have no financial indebtedness to the university at the time of the request. Students must obtain approval for a leave of absence the semester prior to the desired leave. Students desiring a leave of absence should contact the dean of their college.

WITHDRAWAL FROM THE UNIVERSITY

Students who are considering withdrawal from the university should report to the dean of their college for information about the correct procedure. If a student withdraws from the university during the first third of a semester, all courses will be deleted from the student's academic record.

Withdrawal during the second third of a semester of classes will result in having courses listed for the current semester as "W." Withdrawal during the final third of a semester will normally result in a grade of "E" being assigned for all courses, unless extenuating circumstances prevail. These grades will show on the academic record and will be computed in the GPA.

ACADEMIC REQUIREMENTS UPON RETURN

Students must meet the specific academic requirements as shown in the university catalog in effect at the time of their initial matriculation. In the event that a student is absent from the university for two or more years during his/her program of instruction, the academic requirements shown in the catalog in effect at the time of matriculation will normally apply.

OUTSIDE CLINICAL WORK

Many divisions of study at the University, at both the undergraduate and graduate level, require as a condition of graduation the completion of one or more training programs or courses in an outside clinical or professional setting, such as a hospital, clinic, professional office, or public classroom. These outside institutions, offices and schools which provide environmental opportunities sometimes impose additional requirements upon our students as conditions of participation in their programs. Such

requirements might include evidence of a recent medical examination, evidence of health, auto or other insurance, a written agreement to personally accept and abide by the rules and regulation of that institution, the execution of an indemnity agreement or release relative to personal liability of liability to others and similar requirements pertinent to the particular study program. The University assumes there will be assent and compliance to such requirements, rules and regulations by each student upon his or her enrollment in those courses involving outside clinical study.

VETERAN'S BENEFITS

Contact the Office of Veteran's Affairs, 5781 Wingate Hall, Orono, ME 04469-5781, (207) 581-1316, for:

1. Counseling veterans regarding educational benefits
2. Processing applications for Veterans Educational Benefits
3. Maintaining a file of each veteran receiving benefits
4. Certification of student drawing benefits
5. Providing assistance in solving problems related to educational assistance;
6. Making special arrangements related to Veterans Educational Benefits;
7. Directing veterans to various other agencies to help solve problems not related to Educational Benefits.

ACADEMIC RECORDS

TRANSCRIPTS

Students' official academic records are maintained in the Office of Student Records. Transcripts of these records are not furnished to individuals, other institutions, or prospective employers without the written consent of the student concerned.

Official transcripts are provided at a cost of \$3.00 per copy. If 10 or more are ordered at the same time, the fee is \$2.00 each. If the transcript is being sent to another University of Maine System campus, there is no charge. Each graduate will receive a complementary official transcript with their diploma. Students may request an "unofficial" transcript at any time providing the copy is picked up at the Office of Student Records, Wingate Hall. There is no fee for an unofficial transcript. No partial transcripts are issued and only University of Maine transcripts are issued.

University policy prohibits issuing official transcript(s) to any student indebted to the university. Written requests should be sent to: Office of Student Records, University of Maine, 5781 Wingate Hall, Orono, ME 04469-5781

PRIVACY RIGHTS/RELEASE OF INFORMATION

In compliance with the Family and Educational Rights and Privacy Act (FERPA) of 1974 (the Buckley Amendment), the University will not release academic information about a student without a signed request from the student. Certain information is considered public or directory information and includes: full name, dates of enrollment, enrollment status, and degrees earned is public. However, students may request through the Office of Student Records that even this normally public information be kept confidential.

The full policy regarding all types of Student records at the University of Maine is available from the Office of Student Affairs.

COLLEGE OF BUSINESS, PUBLIC POLICY AND HEALTH

Virginia R. Gibson, *Interim Dean*
Sheila Pechinski, *Associate Dean*

Web Site: <http://www.ume.maine.edu>
E-MAIL: business@maine.maine.edu
Telephone: (207) 581-1997
FAX: (207) 581-1930

The College of Business, Public Policy and Health is the administrative umbrella for four nationally-recognized programs in business, nursing, public management and social work. Each of these professional programs provides students with an education based on a strong liberal arts foundation. This broad education is designed to prepare students for successful careers in a rapidly-changing global environment while providing them with the skills needed for lifelong learning.

GENERAL INFORMATION

ENTRANCE REQUIREMENTS

Entrance requirements for the degree programs in the College of Business, Public Policy and Health are noted in the Admission section of this catalog. Please note that admission requirements differ for the business, nursing, public management and social work majors.

ACADEMIC ADVISING

Faculty in the College of Business, Public Policy and Health are committed to ensuring that students receive thoughtful guidance throughout their academic careers. Each student will be assigned a faculty advisor in his/her intended major. Students may request a change in advisor at any time.

DECLARING THE MAJOR

Students applying for admission to the College of Business, Public Policy and Health must designate a major on the application form. The four majors within the College are: Business Administration, Nursing, Public Management and Social Work. Please read the appropriate section in this catalog for more information about the specific majors.

CHANGING COLLEGES

Students currently enrolled in another baccalaureate program at the University of Maine may change their enrollment to the College of Business, Public Policy and Health provided they have the required grade point average and are in good academic standing on the effective date of transfer. For students changing colleges, the Business School and the Department of Public Administration require a 2.0 accumulative grade point average, and Schools of Social Work requires a 2.5 accumulative grade point average, and the School of Nursing requires a 2.6 accumulative grade point average. Students who wish to change Colleges should see their College Dean and must declare an intended major at the time of the change.

TRANSFERS

Students from other Universities generally are accepted as transfer students if they have completed a minimum of 12 semester credit hours with the required grade point average. For students transferring to the Business School and the Department of Public Administration, the required grade point average is 2.0. For students transferring to the School of Social Work, the required grade point average is 2.5. For students transferring into Nursing, the required grade point average is 2.6. Students applying for transfer will receive an evaluation of their transcripts indicating course equivalencies for any courses taken at other institutions.

GRADUATION REQUIREMENTS

In order to graduate from the College of Business, Public Policy and Health students must be in good academic standing and the following requirements must be satisfied:

1. Business and Public Administration require completion of a minimum of 120 degree hours with a minimum 2.0 accumulative grade point average in the major and over all. The School of Nursing requires 126 hours with with a minimum 2.0 accumulative grade point average in the major and overall. The School of Social Work requires 120 hours with a 2.5 overall grade point average. The Department of Public Administration requires completion of 120 hours with a 2.0 grade point average overall and a 2.5 average in all PAA courses.
2. Satisfactory completion of the University's General Education Requirements
3. Satisfactory completion of all requirements for the major

DEGREE PROGRAMS

The College comprises three schools and one department which offer the following degrees:

Business Administration

B.S. in Business Administration
M.B.A.

Nursing

B.S. in Nursing
M.S.N.
C.A.S.

Public Administration

B.A. in Public Management
M.P.A.

Social Work

B.A. in Social Work
M.S.W.

MINORS OFFERED IN THE COLLEGE OF BUSINESS, PUBLIC POLICY AND HEALTH

Students interested in completing a minor must declare their intention in advance by filing a Declaration of Minor Form with the Dean or Department Chair.

Business Administration

(21 credits)

BUA 201 Principles of Accounting I
BUA 220 Principles of Accounting II

BUA 325 Principles of Management and Organization
BUA 350 Business Finance
BUA 370 Marketing
ECO 120 Principles of Microeconomics
ECO 121 Principles of Macroeconomics

Public Management

(18 credits)

PAA 200 Public Management
PAA 220 Introduction to Public Policy

COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT

Robert A. Cobb, Dean
Walter J. Harris, Associate Dean for Instruction
Anne E. Pooler, Associate Dean for Academic Services

Web Site: <http://www.ume.maine.edu/~cofed/>
E-MAIL: EHILL@maine.maine.edu
Telephone: (207) 581-2441
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ABOUT THE COLLEGE

The College of Education and Human Development combines intensive theory and practice to prepare teachers and other educational leaders and providers to help schools and society apply research-based knowledge and field-tested experience to address the changing issues, needs and interests of children, families and schools. The college offers four-year Bachelor of Science degrees in elementary, secondary and kinesiology and physical education; and child development and family relations. It also offers minors in education and in child development and family studies for UMaine students majoring in other disciplines.

The college emphasizes a diverse liberal arts background, academic specialization, professional training and field experiences to prepare teachers who are outstanding practitioners and enthusiastic role models for lifelong learning. Students admitted to the college's Professional Development School Program at the end of their sophomore year have proven their commitment to the profession through self-initiated field experiences and academic performance. They spend the majority of their junior and senior years working and learning in cooperating public schools, under the shared guidance and expertise of master teachers and college professors. Students document their learning and professional growth through the development of a portfolio which serves as a valuable self-marketing asset.

The college's teacher preparation programs are accredited by the National Council for Accreditation of Teacher Education. After successfully completing graduation requirements and the National Teacher Examination, graduates are recommended for provisional teaching certificates in the state of Maine. National accreditation helps pave the way for reciprocal certification in other states.

The college's Kinesiology and Physical Education program provides training and professional experiences for teachers and for health/fitness specialists that serve as a springboard for a variety of careers. Students use the latest technology to measure and analyze human movement, development and deviation, and work with children with special needs to help develop appropriate and responsive programs. The kinesiology and physical education division also conducts the award-winning National Youth Sports Program, providing students the opportunity to gain valuable organizational and educational skills, while helping economically disadvantaged children.

Students in Human Development and Family Studies explore the growth and development of individuals in the contexts of families, schools, and communities. Study may focus on individuals various times in the lifespan (e.g., early childhood, adolescence, adulthood) with special attention to the family context. The family is studied in its various forms (e.g., single-parent, two-parent families, foster families). Graduates are employed as professional in family planning agencies, employment assistance programs, gerontology programs, parent education programs, intervention programs designed to assist individuals and families, daycare, nursery schools, elementary schools, child development service agencies, recreation

programs and family respite care. Graduates are also pursuing advanced degrees in a variety of disciplines that focus on issues pertaining to children and families.

THE STUDENT BODY

The college has an enrollment of approximately 1,000 students who want to be tomorrow's teachers, educational leaders, child development and family relations professionals, or who plan to pursue other rewarding and challenging careers. Even some first-year students already are planning to pursue graduate degrees. Many students choose to study education and human development because of the influence of an inspiring teacher, but they all want to make a positive difference in the lives of children, families, schools and communities. In high school, these students were well-rounded scholars, student-athletes and leaders, achieving academically, and contributing time and talent to a variety of organizations, activities and causes.

Within the College of Education and Human Development's broad offerings and experiences, students find many new opportunities for personal and professional growth, such as Kappa Delta Pi, the international honor organization for education majors, and the Peer Leadership Program, a group of community-spirited students, many of them athletes, who work with area youngsters to help develop positive attitudes and a team approach to problem solving. Students have the opportunity to work closely with faculty on special projects and research, learn highly specialized skills, and meet leaders in their field at various activities on and off campus.

While the majority of students are from the Northeast, others represent states across the country, as well as several other nations. The College of Education and Human Development encourages international study and provides student teaching opportunities in countries such as England, Canada and Australia.

ADMISSIONS INFORMATION

Qualified students are admitted to the College of Education and Human Development as first-year students in a four-year program. Students with advanced standing seeking admission must satisfy the College of Education and Human Development's basic entrance requirements and have at least a 2.5 cumulative grade point average in prior college courses. Formal entrance requirements for the College of Education and Human Development are the same as for the University of Maine. Students wishing to enter the college should obtain a copy of the major Fact Sheet for degree programs offered through the college.

Students from other institutions who have completed a portion of their college work or who want to change their professional plans may apply for admission by transfer. Accepted students will be given advanced standing in the College of Education and Human Development if their previous work meets the requirements and standards of their new program.

TEACHER CANDIDACY

Students in the teacher preparation program must be accepted into teacher candidacy in the second semester of their second year of study in order to enroll in upper level courses. The application for teacher candidacy requires a grade point average of 2.5, a demonstration of basic computer competency skills, two completed field experiences, a reflective essay, and recommendations. Details about the application for teacher candidacy can be obtained from the Information Desk in the College. A grade point average of 2.5 must be maintained for eligibility for student teaching.

PART-TIME STUDENT ADMISSIONS AND RESIDENCY REQUIREMENTS

Students whose only work in the College of Education and Human Development has been or will be in the Summer Session or Continuing Education Division should apply for admission to UMaine as part-time degree candidates. Students seeking initial teacher certification must be enrolled in a degree program. At least 30 credit hours of UMaine courses must be completed to receive a degree. Students who expect their work to be in the Summer Session should apply before their first registration; students whose first work is to be by Continuing Education classes should apply during their first course. Admission has a number of advantages, including immediate assignment of a major advisor and eligibility for guidance and counseling services. Application should be made to the UMaine Admissions Office. Before enrolling for a course, off-campus students should ascertain the amount of such coursework allowed toward fulfilling degree requirements. This information is available from the Associate Dean for Academic Services of the College of Education and Human Development.

GRADUATION REQUIREMENTS

Students successfully completing the required work of the College of Education and Human Development are eligible for a Bachelor of Science degree. A minimum of 120 degree hours of required college work is necessary for graduation. Some programs may require more than 120 hours. In addition, each student must meet the grade point averages of the University and his or her respective program.

Recent state legislation and national accreditation requirements may result in program changes. Students are responsible for monitoring current General Education requirements and should check with their advisors about potential or real changes.

PROFESSIONAL SUBJECTS

The professional subjects required for a degree from the College of Education and Human Development teacher preparation program meet and exceed the current state requirements for a teaching certificate. Additionally, the state has mandated that individuals take the National Teacher Education exam before being certified.

The required professional subjects are designed to acquaint the student with the general aims of education and the techniques and principles of teaching. These courses and related field experiences are arranged to culminate in a supervised student teaching experience.

SUMMER SESSION AND CONTINUING EDUCATION COURSES

Many education courses are offered during the Summer Session and through the Continuing Education Division. Information about these course offerings is available from the CED Director's Office, 5713 Chadbourne Hall, UMaine, Orono, ME 04469-5713.

DOUBLE DEGREES

Students intending to become candidates for double degrees must declare their intent to the deans of both colleges no later than

the beginning of their junior year. The double degree must be in two distinct and separate areas. All requirements of both colleges and majors must be fulfilled, including major requirements for work required outside the department.

The College of Education and Human Development faculty encourage academically able and eligible students interested in interdisciplinary studies to participate in the UMaine Honors Program. Honors courses meet General Education and major requirements on an individualized basis, determined upon consultation with the faculty advisor and the College's "Honors Program Secretary." Interested students may initiate candidacy by requesting written endorsement of their academic advisors.

TEACHER CERTIFICATION

The Maine Department of Education has the sole authority to issue certificates for teaching. However, the College of Education and Human Development, Office of Education Field Experience and Certification is in a position to advise prospective teachers concerning certification. Upon successful completion of the College of Education and Human Development Teacher preparation program and the National Teacher Examination, students are eligible for the provisional teaching certificate at either the elementary or secondary school level. The College of Education and Human Development also provides the option for students who have applied for a minor in Education to pursue eligibility for state certification at the elementary or secondary school level. In addition to required coursework and professional training, the program requires a full semester of student teaching. It is the student's responsibility to secure current certification information and the actual certification directly from the Maine Department of Education.

TEACHER PLACEMENT

The UMaine Career Center provides assistance to prospective teachers in finding teaching positions. Among its offerings are a credentials service, on-campus interviews, weekly job listings and resume critiques. Information about these services are available from the Career Center, 5713 Chadbourne Hall, UMaine, Orono, Maine 04469-5713.

MINORS OFFERED IN THE COLLEGE OF EDUCATION AND HUMAN DEVELOPMENT

MINOR IN ELEMENTARY OR SECONDARY EDUCATION

(25-34 credits)

The College of Education and Human Development offers a minor in Education for all undergraduate students in other colleges at the University of Maine. The minor may be accomplished with or without student teaching, but student teaching is required to be recommended for teacher certification. A minor in Education requires from 25 to 34 credit hours of course work depending on the student's area of specialization. Students seeking state certification will need to meet the academic course requirements defined by the State of Maine. The minor includes the professional education courses required for certification. Student teaching is an additional 13 credit hours.

Students must apply and be accepted to take upper level course work leading to the minor. The optimum time to apply for a minor is during the 2nd semester of the second year of study. Criteria for acceptance includes:

- course EDB 202 and a Child or Adolescent Development course, (CHF 201 or PSY 324).
- include volunteer work in local schools, community service agencies, summer camp programs or after school enrichment programs. One letter of recommendation should be from someone who has supervised the student's work with children/students.

- familiar with the student's skills, strengths and weaknesses, level of responsibility and motivation and able to provide an overall appraisal of the students performance as a student and potential to be a teacher.
- choosing teaching as a future profession.

Information about the minor in education can be obtained from the Information Desk in the college office.

MINOR IN CHILD DEVELOPMENT / FAMILY RELATIONS

18 credits)

The minor in Child Development/Family Relations consists of CHF 200, CHF 201, and 12 additional credits of CHF courses.

Students must earn a minimum grade of C (2.0) in CHF 200 and CHF

201, and the overall GPA for the 18 CHF credits must average a C (2.0). No more than three credits of CHF 409 - Special Topics in Child Development/Family Relations and no more than three credits of CHF 496 - Field Experience in Child Development/Family Relations may be used toward the minor.

CHF 200 Family Interaction	3
CHF 201 Introduction to Child Development	3
CHF Electives	12

COLLEGE OF ENGINEERING

John C. Field, *Interim Dean*
Chet A. Rock, *Associate Dean*

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Engineering is practiced in a social context. Everything engineers produce affects the way individuals and societies function. To allow its graduates to work successfully in this setting, the University of Maine's engineering education programs are designed to educate students in: the design and development of devices, processes and systems for the benefit of individuals and society; the understanding of social, ethical, safety, and health related issues which pertain to the practice of engineering; the dynamic nature of engineering developments and practice which require lifelong maintenance and updating of professional competence.

With this framework each program in the College has a specific philosophy and goals which are expressed in the content and arrangement of its curriculum and are explained in the descriptions of the individual programs.

The College of Engineering offers the following majors:

- A. Four-year Bachelor of Science degree programs: Bio-Resource Engineering (jointly with the College of Natural Sciences, Forestry and Agriculture) Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Physics, Forest Engineering (jointly with the College of Natural Sciences, Forestry and Agriculture), Mechanical Engineering, Pulp and Paper Technology, Spatial Information Engineering
- B. Four-year Bachelor of Science in Engineering Technology degree programs administered by the School of Engineering Technology: Bio-Resource Engineering Technology (jointly with the College of Natural Science, Forestry and Agriculture), Construction Management Technology, Electrical Engineering Technology, Mechanical Engineering Technology.

GRADUATION REQUIREMENTS

- A. In all programs:
 - 1. An accumulative average not less than 2.0.
 - 2. Passing grades in all required courses.
 - 3. Additional requirements listed under each program description.
- B. Students graduating from engineering programs are required to complete the following:
 - 1. 36 credit hours of an appropriate combination of mathematics and basic sciences.
 - 2. 18 credit hours of humanities and social sciences.
 - 3. 36 credit hours years of engineering topics.
 - 4. The University General Education Requirements, and
 - 5. All additional departmental requirements listed under each program description.

HUMANITIES AND SOCIAL SCIENCES

Studies in the humanities and social sciences must be planned to reflect a rationale or fulfill an objective appropriate to the engineering profession and the University's educational objectives. To satisfy this requirement, the courses selected must meet the University General Education requirements in addition to providing some depth in a subject area and not be limited to a selection of unrelated introductory courses.

Courses such as philosophy, religions, history, literature, fine arts, sociology, psychology, political science, anthropology, economics, and languages other than English or a student's native language, technology and human affairs, history of technology, and professional ethics and social responsibility are acceptable to fulfill this requirement. Courses in the School of Performing Arts that involve performance must be accompanied by theory or history of the subject, no more than three credits of performance may be used towards this requirement.

Subjects such as accounting, industrial management, finance, personnel administration, engineering economics, and military training do not fulfill the objective desired of the humanities and social science content.

COOPERATIVE WORK-STUDY OPPORTUNITIES

A number of cooperative work-study programs are available in the College of Engineering. Details of each program may be obtained from the appropriate department.

TECHNOLOGY AND SOCIETY PROJECT

The Technology and Society Project is intended to develop ways to enhance the humanities and social sciences component of undergraduate engineering programs, to work with other colleges in developing the study of technology as a human activity and to infuse this study into the undergraduate curriculum of the university.

Courses dealing with technological development and with topics involving the interfaces of technology and society are offered by the project. These courses are usually taught by teams of faculty members in which each member can provide a different perspective on the subject matter. Some courses fulfill part of the Humanities/Social Science requirements for Engineering students. Courses covering the Technology and Society area are:

- HTY 420 Science and Society Since 1800
- HTY 485 The Sea and Civilization: An Introduction to Maritime Studies I
- HTY 486 The Sea and Civilization: An Introduction to Maritime Studies II
- HTY 491 Technology and Society Until 1800
- HTY 492 Technology and Society Since 1800
- INT 330 Waste Management
- TSO 188 Energy and Society: Technological Choices and Controversies
- TSO 198 Technology and Society I
- TSO 199 Technology and Society II
- TSO 288 Issues in Environmental Pollution
- TSO 351 Transportation and Social Change
- TSO 398 Special Topics in Technology and Society

HONORS PROGRAM

Qualified students in the College of Engineering are encouraged to participate in the University Honors Program. For academic and admission requirements to the Honors Program consult the index or the University Honors Director. In the College of

Engineering, the Honors Program consists of two major segments: studies in the humanities and studies in the student's own field. HON 101, HON 102, HON 201, HON 202, HON 301, and HON 302 may be used to satisfy the appropriate General Education requirement as well as towards completion of the college requirements in humanities and social sciences. Other honors work, including the senior thesis (HON 498-499), may be used to replace portions of the curriculum as approved by the chairperson of the student's engineering department. The area of honors work will show on the student's transcript.

TRANSFER CREDIT

In order that degree recipients meet the minimum education requirements expected for an engineering degree from the University of Maine; transfer students must earn a minimum of 30 hours of University of Maine courses to qualify for the B.S. degree. Among these 30 credits must be the appropriate "capstone" design course. Degree credit will normally be allowed for courses in which grades of "C-" or above have been received. Evaluation of such courses for degree credit and possible equivalency rests with the Dean of the College of Engineering. Credits from military service schools do not transfer. Normally credits transferred from associate degree programs may be used for elective credits only. Associate Degree level mathematics and science courses do not fulfill the requirements for the B.S. Engineering program.

CLEP credit will be granted only for the appropriate subject exams. No credit is given for the CLEP general examinations. The College of Engineering does not grant academic credit for prior work experience.

DOUBLE MAJOR

Double majors are permitted between most disciplines in the College of Engineering. The requirements for meeting the double major state that a student must meet all requirements of two separate and distinct disciplines. Students also may obtain a double major or double degrees across colleges by satisfying the requirements for both colleges and majors. Students intending to become candidates for double majors or degrees across colleges must declare their intent to the deans of both colleges no later than the beginning of their junior year.

AWAY STATUS

Students wishing to register for "Away" status must be in good academic standing and must obtain prior approval from their academic advisor and dean. Course equivalencies should be determined prior to registration.

Before students of the College of Engineering pursue Summer session courses in any institution (including UMaine), they must be in good academic standing and secure the approval of the dean and the chairperson of the student's major department if they expect degree credit for such work.

REPEATING A COURSE

When a course is repeated, the last grade received will be used in computing the accumulative grade point average. A course may not be repeated after an advanced course in the same field has been passed if the course that the student desires to repeat was a prerequisite for the advanced course.

PASS/FAIL

Students enrolled in the College of Engineering may not take courses that are to be used to fulfill the degree requirements on a Pass/Fail basis.

PULP AND PAPER FOUNDATION

Supported by private funding from nearly 150 companies located in 25 states as well as several hundred individual donations and endowment gifts, the foundation encourages a strong teaching and research program in Chemical Engineering, with a significant undergraduate merit based scholarship program available to qualified students throughout the College of Engineering, School of Engineering Technology and the forest management program in the College of Natural Sciences, Forestry and Agriculture.

MINORS OFFERED IN THE COLLEGE OF ENGINEERING

The College of Engineering offers minors in the departments of Chemical, Civil and Environmental, Construction Management Technology, Electrical and Computer, and Mechanical Engineering. In cooperation with the College of Natural Sciences, Forestry and Agriculture a minor is offered through the Department of Biosystems Engineering and Science. Prior to enrolling in a minor a student must consult with the appropriate Department Chairperson to select the courses most appropriate to his/her background and career goals. Minors are open to students who have completed; mathematics through differential equations; a year of physics and at least one course in Chemistry along with the prerequisites required for the individual Engineering courses. All students obtaining a Minor in Engineering are required to obtain a GPA of at least 2.0 in the minor with no more than one grade less than C-.

In addition the Department of Naval Science (NROTC) offers a minor in Naval Science.

MINOR IN BIO-RESOURCE ENGINEERING TECHNOLOGY

Fluid Power

(18 credits)	
BRE 462 Power Transmission and Control	3
BRE 452 Fluid Power and Robotics	3
BRE 464 instrumentation and Control Systems	3
BRE 497 Special Problems in BRE (Fluid Power)	3
MEE 360 Fluid Mechanics	3
and one of the following:	
MEE 455 Advanced Strength of Materials	3
MEE 461 Compressible Fluid Flow I	3

MINORS IN CHEMICAL ENGINEERING

Process Engineering

(23 credits)	
CHE 200 Fundamentals of Chemical Engineering	4
CHE 385 Chemical Engineering Thermodynamics I	3
OR	
CHE 386 Chemical Engineering Thermodynamics II	3
CHE 360 Elements of Chemical Engineering I	4
CHE 362 Elements of Chemical Engineering II	4
CHE 352 Process Control	3
CHE Electives	5

Pulp and Paper Technology

(17 credits)	
BMB 221 Organic Chemistry	3
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
PPA 264 Survey of the Paper Industry	3
PPA 466 Papermaking Technology	3
PPA 474 Paper Manufacture and Testing	4

COLLEGE OF LIBERAL ARTS AND SCIENCES

Rebecca E. Eilers, *Dean*
Welch D. Everman, *Associate Dean*
Charles R. Russ, *Associate Dean*
Mindy Kezis, *Coordinator of Student Academic Services*
Gerald Herlihy, *Coordinator of ACE*

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The College of Liberal Arts and Sciences is dedicated to providing a sound education in the liberal arts and to imparting the specific knowledge and skills required for careers in one of its many representative disciplines. This education, both in its breadth and its approach to learning, leads students to an enlightened sense of themselves, their heritage, their world; prepares them for responsible and active citizenship; and prompts those habits of thought and expression crucial to a lifetime of active learning. A major goal of the College is to provide students with the ability to think independently, to analyze, and to achieve independent judgment.

GENERAL INFORMATION

ENTRANCE REQUIREMENTS

Requirements for admission to degree programs in the College of Liberal Arts and Sciences are noted in the Admission section of the catalog. Please note that admission requirements differ for B.A. and B.S. degree programs.

ACADEMIC ADVISING

The College of Liberal Arts and Sciences is committed to fostering and maintaining a positive relationship between students and faculty. To help achieve this goal, all new students will be assigned to a faculty academic advisor in the discipline in which they intend to major. Students who do not list an "intended major" on their admission application will be assigned to a faculty advisor in any one of the disciplines in the college; once they focus in on an intended major, advisor reassignment may be requested.

DECLARING THE ACADEMIC MAJOR

New first-year students admitted into a bachelor of science program enter directly into the major. Students admitted into a bachelor of arts program must declare an academic major when they have accumulated 53 degree hours. At that time, the College will send to each student a "declaration of major" form along with appropriate instructions. Students should note that admission into the college does not guarantee acceptance into any particular major. For information on admission to a specific major, please read carefully the catalog copy for that major.

CHANGING COLLEGES

The College normally accepts all current UMaine students from other baccalaureate programs who have a 2.0 accumulative

grade point average and are in good academic standing on the effective date of transfer. However, eligibility for any particular major is determined by the department in which the major resides (see paragraph above). Thus, a student may be admitted into the college, but not necessarily into their first choice major.

In unusual circumstances, students who have less than a 2.0 accumulative grade point average may be allowed to change colleges. Students who find themselves in this situation should discuss their request for change with the college dean.

TRANSFERS

Students from other universities or from baccalaureate programs at other campuses within the University of Maine System generally are accepted as transfers to the College of Liberal Arts and Sciences if they have earned an accumulative grade point average of 2.0 at their previous institution. However, this does not assure students of acceptance into any particular major. Please refer to the paragraph on "declaring the academic major," for additional information.

GRADUATION REQUIREMENTS

In order to graduate from the College students must be in good academic standing, i.e., not on academic probation. Any student who was admitted on a "CONDITIONAL" status because they lacked a required high school unit must have this condition removed. In addition, the following must be satisfied:

1. Minimum completion of 120 degree hours, with an accumulative grade point average of 2.0 ("C" average) in the major and overall. (NOTE: some majors require a higher minimum grade point average in the major. Students should check the catalog copy for their particular major).
2. Satisfactory completion of the University's General Education Requirements.
3. Satisfactory completion of the College's BA or BS requirements
4. Satisfactory completion of all requirements for the major.

Please Note: Students who entered a degree program at UMaine prior to September 1997 may follow a different set of requirements. All questions regarding University or College requirements should be addressed to the College Dean.

B.A. REQUIREMENTS

In addition to the credit required for the General Education, Human Values Social Context, Math, and Science requirements,

Students must take nine credits of courses numbered 200 or above with at least one course prerequisite ("upper level") in an area or areas outside of their major area.

Areas defined as: Art/Humanities; Sciences (includes courses from the Colleges of Engineering and Natural Sciences, Forestry, and Agriculture); Social/Behavioral Sciences (includes courses from the colleges of Education and Human Development and the College of Business, Public Policy, and Health); and Interdisciplinary Studies, such as Women's Studies (WST courses), Franco-American Studies (FAS courses), Peace Studies (PAX courses), etc.

Specific Credit Limits:

KPE skills courses - 2 credits, maximum allowed

Outside major - 72 credits, minimum

ROTC - 9 credits, maximum allowed, Jr./Sr. level (numbered 300 or 400) only

BACCALAUREATE PROGRAMS

The College is composed of 16 departments and one school which offer the following degrees:

ANTHROPOLOGY

A., Anthropology
A., International Affairs/Anthropology

ART

A., Art (Art Education, Art History, Studio Art)

CHEMISTRY

A., B.S., M.S., Ph.D., Chemistry

COMMUNICATION DISORDERS

A., M.A. Communication Disorders

COMMUNICATION AND JOURNALISM

A., M.A. Communication
A., Journalism
A., Mass Communication

COMPUTER SCIENCE

A., B.S., M.S., Computer Science

ECONOMICS

A., M.A., Economics
A., International Affairs/Economics

ENGLISH

A., M.A., English

HISTORY

A., M.A., Ph.D., History
A., International Affairs/History

MATHEMATICS AND STATISTICS

A., M.A., Mathematics

MODERN LANGUAGES AND CLASSICS

A., French
A., German
A., International Affairs/Foreign Languages

B.A., Latin
B.A., Modern Languages
B.A., Romance Languages
B.A., Spanish

PHILOSOPHY

B.A., Philosophy

PHYSICS AND ASTRONOMY

B.A., B.S., M.S., Ph.D. Physics
B.S., Engineering Physics
Master of Engineering in Engineering Physics

POLITICAL SCIENCE

B.A., Political Science
B.A., International Affairs/Political Science

PSYCHOLOGY

B.A., M.A., Ph.D, Psychology

SOCIOLOGY

B.A., Sociology

SCHOOL OF PERFORMING ARTS

B.A., Music
Bachelor of Music in Music Education
Bachelor of Music in Performance
B.A., M.A. Theatre
Master of Music

An individualized Ph.D. is available in several disciplines.

FOREIGN LANGUAGE REQUIREMENTS

Many departments that offer the B.A. degree have special language requirements or recommendations for B.A. degree students, as follows: NOTE: Intermediate level proficiency means the equivalent of two semesters of an intermediate level language course; e.g. SPA 203, 204. ART: Intermediate level French or German is required for students who major in art history; ENGLISH: Proficiency at the intermediate level; HISTORY: Students majoring in History are required to demonstrate intermediate level proficiency in a foreign language through course work or examination; INTERNATIONAL AFFAIRS: (in Anthropology, Economics, Modern Language, History, or Political Science): At least one year of a foreign language beyond the intermediate level; MUSIC: One year of a foreign language which can be either the continuation of the language taken in high school or a new language; PHILOSOPHY: One year of a foreign language is recommended for the B.A. degree, two years for those going on to graduate study. THEATER: Intermediate level proficiency in a foreign language.

Students in some majors who have presented two years of a high school foreign language for admission may not receive credit for an elementary course in that particular language, unless five years have passed between high school graduation and admission to a college or university. Please consult your major department or college regarding their specific language requirement policies.

It is recommended that these students take:

1. An intermediate or advanced course in the language studied in high school (credits earned in those courses count towards the advanced course credits in the humanities category)
OR
2. An elementary course in a new language (credits earned here count towards the introductory course credits in the humanities category)

Any language course (except for elementary courses in the student's high school foreign language) can be taken for credit as an elective.

Credits are awarded on a semester basis.

Finding the appropriate level at which to take a language course is essential for success.

Foreign Language CLEP examinations in French, German, and Spanish are offered four times a year to students who have taken a minimum of three years of a foreign language in High School.

Credit by examination can be achieved as follows:

1. If the score on the CLEP examination is sufficiently high (see following table), the student will receive three hours of degree credit equivalent to the first semester of the intermediate course.
2. As an incentive to continue language study, a student is eligible to receive an additional three credit hours equivalent to the second semester of the intermediate course by skipping an intermediate course and passing with a grade of "B" or better two semesters of language study beyond the intermediate level. For example, a student who scores 53 on the French examination would receive three credits equivalent to FRE 203. The student would then have the choice of taking FRE 204, or skipping FRE 204 and taking FRE 205 and FRE 209 or 210, or an advanced course. A student who completes two three-hour French courses above the intermediate level with a grade of B or better will receive an additional three credit hours equivalent to FRE 204. **STUDENTS TAKING FRE 203 OR 204 FOR CREDIT CANNOT RECEIVE CREDIT FOR THESE COURSES BY EXAMINATION.**
3. The student who scores extremely high will receive six hours of credit equivalent to the intermediate course. It is recommended that these students continue to take advanced courses in the language for which they have demonstrated considerable proficiency.

EXAM	Score Range	
	3 Hrs. Credit	6 Hrs. Credit
French	53-62	63 and above
German	48-60	61 and above
Spanish	50-59	60 and above

The Modern Languages and Classics Department accepts Advanced Placement Examinations in Foreign Languages and Literature for degree credit. See the Advanced Placement Credit table. Refer to the index for page number.

Students who did not have two years of the same language in high school are admitted to a B.A. degree program on a "CONDITIONAL" status. They should check with the Dean's Office regarding options for removing this "CONDITIONAL" status. Students are expected to make up this deficiency during their first year at the University of Maine.

ACADEMIC AND CAREER EXPLORATION PROGRAM (ACE)

It is common for students entering college to be undecided about a major or to have several areas of academic interests. Such students can apply for admission to the Academic and Career Exploration Program (ACE) rather than to one of the baccalaureate degree colleges at UMaine. The ACE Program is a selective, limited-enrollment program which provides undecided students the opportunity to assess their abilities, interests and goals while systematically investigating the University's various academic programs.

Through the special seminars and close contact with faculty advisors that characterize the program, ACE students engage in structured activities which enable them to make informed choices of major and consider potential careers. Under the guidance of their advisors students select courses to investigate disciplines of interest as well as to fulfill general education requirements.

Generally students continue in the ACE Program for one year. By the end of the first year ACE students will generally feel confident

they have identified an academic program that matches their abilities and intellectual or career interests. At the time of declaration of major or transfer to a college, students must meet the eligibility requirements (e.g., GPA) of the program or college of interest. ACE students may choose to major in any of the undergraduate programs at the University, provided they meet the eligibility standards and there is space available. Further information may be obtained by calling the ACE Program Coordinator at (207) 581-1831.

ISIS—INTEGRATING STUDENTS INTO INTERDISCIPLINARY STUDY

Designed specially for first year students, ISIS courses provide a unique academic experience. Each course is taught by an interdisciplinary team of six faculty. ISIS courses focus on the relationships among the disciplines.

The classes are designed with a lecture one day and small seminars the second day of the week. Each seminar will have at least two instructors who might, for example, be a historian and a chemist, a linguist and a zoologist, or a mathematician and a sociologist. At all times, students will be presented with two distinct points of view from different disciplines.

First year students will get to know several of the University's faculty and develop friendships during the small seminars. ISIS courses are listed in the course descriptions under the ISI designator.

THE INTENSIVE ENGLISH INSTITUTE

The *Intensive English Institute* (IEI) of the University of Maine is part of the College of Liberal Arts and Sciences. Its primary emphasis is on preparing international students and non-native speakers of English for university study at UMaine and other American Universities and colleges, or for professional activities where English is the medium of communication. Two 14 week semesters with mid-term starting dates and one 7 week session in Intensive English are offered year round. 6 week and 4 week *TOEFL and University Prep* courses are offered in the summer. Contract summer courses are also offered. In addition to a full-time course of study, the IEI offers academic advising, cross-cultural counseling, tutorials and self-study opportunities in a variety of content and skill areas. The TOEFL is administered by the Institute every semester. Students may also participate in the Conversational Partners Program. The IEI endorses the *TESOL Standards for Postsecondary Programs* and the *NAFSA Principles of International Educational Exchange*, and has met the standards of the American Association of Intensive English Program (AAIEP). It is a member of NAFSA, TESOL, AAIEP, and EAIE.

The IEI provides specialized language training programs upon request for institutions and organizations, particularly in the area of Pre-Academic Skills, Teacher Training in English as a Second/Foreign Language and American Studies.

The IEI is committed to quality of instruction and service in its programs.

CURRICULUM

Our curriculum consists of six full time levels from beginning to advanced. Students are tested and placed into the appropriate level of instruction. There are four core classes totaling 20 hours per week. The four communication skills are addressed in integrated classes of Reading/Writing and Listening/Speaking. Students also take Grammar and Vocabulary Building. Beginning to intermediate students have additional supervised hours in the Language Lab, and high intermediate to advanced students may take Directed Study Skills.

FEES

IEI students are charged a set fee for each three-credit course. Students may enroll in one to four courses. The IEI accepts both

triculated and non-matriculated students.

CALENDAR FOR 1997-1998

May 12 - June 27 : Intensive English Summer a 1997
July 7 - August 15 : 6 week TOEFL 1997
September 3 - October 23 : Intensive English, Fall a 1997
October 27 - December 17 : Intensive English, Fall B 1997
January 12 - February 27 : Intensive English, Spring a 1998
March 16 - May 1 : Intensive English, Spring B 1998
May 11 - June 26 : Intensive English, Summer a 1998
July 6 - August 14 : 6 week TOEFL 1998

WOMEN'S STUDIES PROGRAM

Women's Studies has the following goals: 1) to teach and learn about all women's experiences, past and present; 2) to make women visible in their similarities and differences; 3) to value personal experience as a way of knowing; 4) to create new knowledge about women and apply it to personal, political, and institutional change; 5) to strengthen the links among women and among women's programs in the community and on campus; and 6) to empower women by increasing choices in all women's lives.

Women's Studies enables students to achieve a more complete understanding of the roles, contributions, and experiences of women. The structure for the minor provided by the core courses in Women's Studies and the guidance available in the selection of approved electives assures the student a focused and coherent experience.

The minor in Women's Studies contributes significantly to the programs of students who plan careers in such fields as social work, medicine, government, journalism, education, communication, counseling, law, business, or management. Even for those planning careers in areas with no direct focus on women, however, an awareness of the history, culture, and experiences of women can help such students better understand our contemporary world, with its changing roles and patterns for women and men alike.

ADMINISTRATIVE STRUCTURE

A University-wide program, housed in the College of Liberal Arts and Sciences, the minor in Women's Studies is administered by the Director of the Women in the Curriculum and Women's Studies Program. General policy for Women's Studies is the responsibility of the WIC director and the Women's Studies Committee. Decisions about the Women's Studies curriculum and the monitoring and valuation of the program's quality are the responsibility of the WIC director in consultation with the faculty members of the Women's Studies Committee.

CORE COURSES IN WOMEN'S STUDIES

The six core (WST) courses described below are interdisciplinary and multicultural. Additionally, each of the six courses recognizes the diversity of women in such areas as race, class, ethnicity, sexual orientation, and religion.

WST 101 satisfies some General Education requirements. Students may undertake directed study at an intermediate or advanced level with WST 298 and WST 498 and may also arrange for field experience.

GENDER BALANCED COURSES

The WIC Office maintains a list of courses which focus partially on women's issues or gender as a social construct. Some examples of such courses are listed below; more information can be obtained from the specific department where the course is housed.

ANT 445* Gender and Anthropology
CHF 200 Family Interaction

*This course is provisionally approved as a Women's Studies elective.

CHF 351 Human Sexuality
EGS 500 Seminar in Gender Studies in Education
PHI 102 Philosophy and Modern Life
PHI 106 Social Issues in Recent Religious and Philosophical Thought
PHI 107 Existentialism
PHI 343 Marxist Philosophy II: Twentieth Century Marxist Philosophy
PHI 352 Philosophy of Natural Science
SOC 319 Domestic Violence and Social Structure
SOC 329 Sociology of Gender

ADVISING AND INFORMATION

Students electing the minor in Women's Studies may be assigned a Women's Studies advisor to assist them with designing their program and choosing their courses or may be advised by the WIC Director.

Students, faculty, and others desiring information about the Women's Studies Program, its WST courses, or its approved electives, may contact the WIC office. All questions about the program should be addressed to the WIC Director, 101 Fernald Hall, (207) 581-1228.

MINORS OFFERED IN THE COLLEGE OF LIBERAL ARTS AND SCIENCES

ANTHROPOLOGY

(18 credits)

The requirements for the minor in Anthropology consist of the following:

ANT 101 Introduction to Anthropology: Human Origins and Prehistory

ANT 102 Introduction to Anthropology: Diversity of Cultures

Plus two of the following *six courses*:

ANT 221 Introduction to Folklore

ANT 317 Fundamentals of Archaeology

ANT 464 Cultural Ecology

ANT 465 Political Anthropology

ANT 466 Economic Anthropology

ANT 469 Theories of Religion

Plus 2 additional courses in Anthropology or Geography for a total of 18 CREDITS.

At least 9 credits must be taken at UMaine.

ART HISTORY

(21 credits)

The minor in art history is designed to serve the needs of students from a broad range of fields. After studying a comprehensive survey of the Western Tradition, students may select upper level courses according to their interests. These courses include offerings in both the Modern era (1800 onward) and the Pre-Modern eras that preceded it. The required introductory studio course will expose students directly to issues of artistic creativity, an essential component to understanding the History of Art. A total of 21 credit hours is required. Transfer credits will be accepted for one hundred level courses only.

The requirements for the minor in Art History include:

6 credit hours in foundation art history:

ARH 155 Art History I

3

ARH 156 Art History II

3

3 credit hours in foundation studio course:

Choose one of the following courses:

ART 100 Drawing I

3

ART 110 2-D Design

3

ART 120 3-D Design

3

12 credit hours in upper level art history courses:

ARH 2XX Pre-Modern Survey

3

ARH 2XX Modern Survey
 ARH 3XX Pre-Modern Seminar
 ARH 3XX Modern Seminar

3 HTY 401 History of Greece
 3 HTY 402 Roman History
 3 HTY 433 Greek and Roman Mythology
 HTY 434 Greek and Roman Heritage in America

CHEMISTRY

(18 credits)

1. At least 15 credits of CHY courses at the 200 level and above, including a 300 level laboratory or 400 level lecture course. Up to 3 credit hours of undergraduate research in Chemistry and BMB 322/322L or BMB 450 may be included.
2. 3 credits of General Chemistry may be applied to meet the 18 credit requirement.

CLASSICAL STUDIES

(18 credits)

The classical period in Western history, defined as the period from the Bronze Age to the fall of the Roman empire in the 5th century C.E., comprises the "roots" of modern society. In order to understand where we are and where we are going, it is necessary to know where we have been. European and American literature, philosophy, law, religion, politics, language, and art have all been either directly or indirectly formed in reaction to Classical culture. By examination and study of Classical civilization, the student will develop a sense of how the ancients responded to the universal questions of human experience. Through an implicit comparison of the cultures of ancient Greece and Rome to our own, the student will also come to have a fuller understanding of the humanist and cultural impulses which have formed and which continue to form our own experience. This minor is particularly useful to the student with interests in ancient history, philosophy, art history, anthropology, literature and political science. It will also prove useful to the student preparing for a career in law.

A minimum of 18 credits or 6 courses is required. The student who elects this minor normally chooses Latin as a fulfillment of the language requirement. The advanced student may choose ancient Greek rather than Latin (as available), with permission of the instructor. The student will take *either* two semesters of Latin beyond the elementary level or two semesters of Greek at elementary level or above. In addition, the student will take HTY 401, History of Greece or HTY 402, Roman History, and the remaining three courses in one or two areas listed below. The list below is flexible; new courses, special seminars, pertinent readings in upper level Honors courses, and independent study may be approved for Classical Studies.

Course Offerings

Art History

ARH 155 Art History I
 ARH 251 Classical Art
 ARH 361 Topics in Art History

Classics

CLA 101 Greek Literature in English Translation
 CLA 102 Latin Literature in English Translation
 CLA 201 Women in the Ancient World
 CLA 202 Mythology of the Ancient Near East, Egypt and Greece

English

ENG 230 The Bible as Literature
 ENG 231 Western Tradition in Literature: Homer through the Renaissance
 ENG 435 The Bible and Near Eastern Literature

Greek

(As offered).

History

HTY 105 History of European Civilization I
 HTY 201 Classical Civilization

Latin

LAT 203 Readings in Latin Literature I
 LAT 204 Readings in Latin Literature II
 Upper level Latin as offered

Modern Languages

MLC 231 Western Tradition in Literature: Homer through Renaissance

Philosophy

PHI 210 History of Ancient Philosophy

Political Science

POS 201 Introduction to Political Theory
 POS 301 Classical Political Thought

Theatre

THE 112 Masterpieces of World Drama I

COMMUNICATION

(18 credits)

The minor in Communication consists of COM 201, COM 202, and four electives to total 18 credit hours. At least two of the electives must be at the 300 and 400 level. a grade of "C" (2.0) must be achieved in COM 201 and COM 202, and the grades for all 18 credit hours must average a "C". a minimum of nine COM credit hours must be taken at the University of Maine.

COMPUTER SCIENCE

(18 credits)

COS 220 Introduction to Computer Science I
 COS 221 Introduction to Computer Science II
 COS 230 Computer Architecture and Assembly Language
 OR
 COS 250 Discrete Structures
 Plus any three additional COS courses at the 300-level or above.

DANCE

(18 credits)

The minor in dance is designed to provide the student with a basic foundation in dance technique, dance history, and choreography with a focus towards production and performance. Students will receive dance technique training in ballet, modern, and jazz. In addition students will study composition and gain expertise in choreography. Those students who wish a concentration in dance history may select from a variety of courses addressing historical and contemporary issues. Dance students are encouraged to participate in the annual dance concert as well as informal studio showings and the activities of the UMaine Dance Company Club. Production credits may be available for these efforts.

Core Courses

Of the 18 credits required for the minor, 11 credit hours of the following courses must be taken:

DAN 101 Beginner Modern Dance (Repeated for credit)	2+2
DAN 102 Beginner Ballet (Repeated for credit)	2+2
DAN 250 Dance Composition I	3
Plus 2 credits from:	
DAN 201 Intermediate Modern Dance (DAN 101 or Permission)	2
DAN 202 Intermediate Ballet (DAN 102 or permission)	2
DAN 203 Intermediate Jazz (DAN 103 or permission)	2
Plus 5 credits from:	
DAN 112 Production/Rehearsal (P/F Audition or permission)	1-2

DAN 266 Dance History	3
DAN 375 Dance in the 20th Century (DAN 266 or permission)	3
DAN XXX Dance technique courses above 100 level	2-4

ECONOMICS

(18 credits)

The requirements for the minor in Economics are:

- ECO 120 Principles of Microeconomics
- ECO 121 Principles of Macroeconomics

Either

- ECO 420 Intermediate Microeconomics

OR

- ECO 421 Intermediate Macroeconomics

(with a minimum grade of C- in the option selected). Three

elective Economics (ECO) courses at the 300, 400, or 500 levels.

Students must obtain a minimum of 2.0 grade point average in Economics courses taken pursuant to requirements of the minor. A minimum of 9 of the 18 credit hours used to satisfy the economics minor requirement must be taken at UMaine.

FRANCO-AMERICAN STUDIES

(18 credits)

In New England, and particularly in Maine where citizens of French Canadian and Acadian descent comprise approximately 35 percent of the population, the Franco-American community has struggled to maintain its language and culture for over a hundred years. The long-neglected story of this ethnic community represents a crucial element in the history and the current social dynamic of Maine and the Northeast, and constitutes a cultural bridge to Franco-Canada, particularly the neighboring provinces of Québec and the Maritimes. In response to these realities the University of Maine has recently renewed its commitment, as originally articulated by President Winthrop Libby in 1973, to build a Franco-American program "of national and international stature," one that authentically reflects the history, language, and culture of Franco-Americans of this region.

Focusing on Franco-Americans of the Northeast, the minor is designed to encourage students (Franco and Non-Franco) to engage a broad range of subjects particular to this ethnic community and, by extension, to become sensitized to issues of diversity implicit in the multicultural context of the larger society. Franco-American students may take advantage of the program to explore and reclaim their own cultural legacy.

The first course in Franco-American Studies, "Franco-Americans of the Northeast: Introduction to an Ethnic Community" (FAS 201) presents a broad spectrum of themes and issues relevant to the history and current realities of this ethnic community. FAS 201 will be offered annually or as demand dictates. a topics course (FAS 329) will be offered on a variety of topics submitted by faculty from across the academic disciplines. Students who wish to designate a minor in Franco-American Studies will complete at least eighteen credit hours, including FAS 201, FAS 329, a capstone experience (see coordinator) and a selection of "Related Courses" from the list below. Additional course options will be listed in succeeding catalogs as they are developed or as current departmental offerings become appropriate to the Franco-American Studies concentration. Students wishing to inquire about courses or the status of the minor should contact the program coordinator: James Bishop, Assistant Director for Academic Programs, Franco-American Center, (207) 581-3764.

Core Courses

- FAS 201 Franco-Americans of the Northeast: Introduction to an Ethnic Community
- FAS 329 Topics in Franco-American Studies

Related Courses

- ANT 300 Basic Theory in Cultural Anthropology
- ANT 456 Ethnic Conflict in the Modern World
- FRE 203 Intermediate French I

- FRE 204 Intermediate French II
- FRE 256 French Canadian Civilization
- FRE 297 French (May-Term)
- FRE 440 Franco-American Civilization
- HTY 111 Canada: From Cartier to Trudeau
- HTY 458 History of French Canada and Franco-Americans
- HTY 459 Colonial Canada

HISTORY

(18 credits)

The history minor shall consist of at least 18 credit hours of which at least 12 must be upper level courses. These credits should include courses that cover more than one continent and more than one century.

INTERNATIONAL AFFAIRS

(24 credits)

The requirements are:

- At least one year of a modern foreign language at the intermediate level (i.e., SPA 203 and SPA 204).
- a total of eighteen (18) hours above the 100 level in anthropology, economics, history, and political science from among the following courses or from among others with an international focus. At least one (1) course and no more than two (2) courses in each discipline must be taken.
 - Anthropology Affairs in Anthropology, A).
 - Anthropology, B.1).
 - Anthropology, B.2).
 - International Affairs in Anthropology, B.3).

LATIN AMERICAN STUDIES

(18 credits)

The Latin American Studies minor offers a series of courses in modern languages, anthropology, history and economics concerning Latin America designed to broaden the student's undergraduate education and increase his or her job opportunities.

Although North Americans and Latin Americans share the "New World," they have little understanding of each other. North Americans have reacted to Latin America either by ignoring it, or through the most unfortunate stereotypes.

Latin America cannot be ignored much longer. The area is rich in natural resources (most of the oil used in New England comes from Venezuela). It also presents a huge market for U.S. made goods. The area currently is undergoing rapid and sometimes violent social change, as witnessed by events in Central America. Spanish speakers have become the largest immigrant group in the United States; and Cuba's Castro has been an acknowledged leader in the "Third World."

The size and diversity of Latin America make it difficult to comprehend. Brazil alone is larger than the continental United States. Latin American communities range from SPARKling modern cities like Caracas and Rio de Janeiro to thousands of rural, traditional hamlets in the Amazon Basin and Central America. Although Spanish and Portuguese are the predominant languages, there are hundreds of different Indian societies, totaling millions of people which have maintained their traditional languages and cultures.

Measured by North American standards, Latin America appears eccentric, inconsistent, and full of surprises. Measured by its own standards, it is orderly, consistent, and comprehensible.

The Latin American Studies minor combines training in languages, literature, and social sciences to allow students to begin to deal with this very different and increasingly important part of the world. The faculty involved in this minor have spent substantial time in Latin America.

Course Offerings

A minimum of 18 hours are required for the Latin American Studies minor.

1. **Language Competence.** The student must demonstrate proficiency in Spanish at the intermediate level. Proficiency may be demonstrated either by examination or by completing SPA 203/204 with a mark of "B" or higher. Students will not be admitted to the program until they have completed SPA 101/102. Course work in intermediate Spanish (SPA 203/204) will be counted toward the minor.
2. **Social Sciences and Literature.** In addition, the student is required to take at least one course in three of the following four areas: *Anthropology* ANT 453 Peoples and Cultures of Mesoamerica, ANT 459 Peoples and Cultures of South America, ANT 467 Peasant Studies, ANT 476 Mesoamerican Prehistory, ANT 480 South American Prehistory, *Economics* ECO 336 Marxian Economics, ECO 338 Economic Development, *History* HTY 447 Latin America: Under the Conquerors, HTY 448 Latin America: Reform and Revolution, HTY 452 Topics in Latin American History, *Literature* SPA 307 Readings in Peninsular Literature, SPA 308 Readings in Spanish American Literature.

Another more advanced course in Latin American literature may fulfill this requirement (SPA 408, SPA 409, SPA 410)

Additional courses in Anthropology, History, Latin American Literature and Spanish are recommended.

LINGUISTICS

(18 credits)

Linguistics is the field of study concerned with language, both as a general human faculty and as manifested in particular languages. The minor includes such topics as the acquisition of language, its sounds, meaning, structure, social and cultural aspects, families and dialects, and change.

The Linguistics minor entails a minimum of 18 credit hours as follows:

Course Offerings

1. **Core** The following three courses must be completed for a minimum total of nine credit hours:
 - a. INT 410 Introduction to the Study of Linguistics
 - b. ENG 477 Modern Grammar
 - c. CDS 480 Language Development
2. **Electives** Students may select courses from among the following which, when added to those in the core, will complete the total of 18 credit hours: CDS 483 Anatomy and Physiology of the Speech Mechanism, CDS 484 Introduction to Speech Science, CDS 585 Children's Language Disorders, COM 356 Speech Play and Performance, COM 405 Women and Communication, COS 220 Introduction to Computer Science I, COS 221 Introduction to Computer Science II, COS 301 Programming Languages, COS 470 Introduction to Artificial Intelligence, ENG 476 History of the English Language, ENG 579 The Theory of Composition (also listed as COM 579), FRE 420 French Phonetics, FRE 442 French Language of North America, FRE 499 Applied French Linguistics, FRE 500 History of the French Language, FRE 520 French Linguistics, GER 403 History of the German Language, MAT 241 Logic, PHI 250 Formal Logic, PHI 260 Philosophy of Language, PHI 363 Theory of Knowledge, PSY 522 Social Development in Children.

The enumeration here is not definitive. New courses, projects, special seminars, or pertinent reading in upper honors courses may be approved for this minor.

MARXIST/SOCIALIST STUDIES

(18 credits)

The Marxist/Socialist minor encourages students to look at the world from a Marxist/Socialist perspective. Many departments offer approaches which have their foundation in the work of such economic theorists as Adam Smith and such political philosophers as Thomas Hobbes and John Locke. Such approaches seem to assume that capitalist values are "natural," "according to human nature,"

progressive, just, or simply the only way that rational people would view the world. Marxism challenges such assumptions and judgments and such a world outlook.

Course Offerings

All students who elect the Marxist/Socialist minor should take PHI 342, Marxist Philosophy I: The Philosophy of Karl Marx, and at least three other courses from the "core courses" and two courses from the "elective courses." In addition, these courses should be taken from at least three different disciplines.

Core Courses:

Economics

ECO 431 Contemporary Alternatives in Political Economy
ECO 336 Marxian Economics

English

ENG 470 Topics in Literary Theory and Criticism

History

HTY 448 Latin America: Reform and Revolution
HTY 467 Early 20th Century American 1914 - 1945
HTY 468 America Since 1945
HTY 472 American Labor History

Philosophy

PHI 106 Social Issues in Recent Religious and Philosophical Thought
PHI 342 Marxist Philosophy I: The Philosophy of Karl Marx
PHI 343 Marxist Philosophy II: Twentieth Century Marxist Philosophy

Sociology

SOC 343 Sociology of Work and Labor

ELECTIVE COURSES:

ARH 262 Early Modern Art: Fauvism to Surrealism
ARH 263 Late Modern Art: From Abstract Expressionism Through New Forms
ARH 351 Art History Theory and Criticism
ARH 352 Critical Methods in History of Art
ARH 362 Medieval Art and Architecture Seminar
ARH 363 Renaissance Art and Architecture Seminar

Communication

COM 410 Social Influence of Mass Communication
COM 444 Political Rhetoric

Economics

ECO 337 Comparative Economic Systems
ECO 338 Economic Development
ECO 335 History of Economic Thought

English

ENG 429 Topics in Literature: Race, Class, and Gender in 20th Century American Literature
ENG 453 The Works of Shakespeare
ENG 456 The English Romantics
ENG 481 Topics in Women's Literature

History

HTY 407 The Age of Revolution, 1789-1860
HTY 409 Twentieth Century Europe, (1914-1945)
HTY 424 History of Russia II
HTY 441 History of Modern China
HTY 447 Latin America: Under the Conqueror
HTY 473 American Diplomatic History I
HTY 474 American Diplomatic History II
HTY 482 Canada and the American Economy

HTY 499 Contemporary Problems in History (The U.S. and Vietnam)

Philosophy

PHI 240 Social and Political Philosophy

PHI 344 Theories of Justice

PHI 439 Feminist Social and Political Theory

PHI 465 Advanced Topics in Philosophy: Freedom, Equality and Community

PHI 465 Advanced Topics in Philosophy: Democracy, State and Society

Political Science

POS 336 Government and Politics in Russia and former Soviet Territories

Sociology

SOC 101 Introduction to Sociology

SOC 202 Social Problems

SOC 213 Deviance and Social Control

SOC 314 Law and Society

SOC 460 Major Ideas in Sociology

MATHEMATICS

(24 credits)

The following four courses: MAT 126, MAT 127, MAT 228, MAT 262.

Any three of the following: MAT 259, MAT 261, MAT 425, MAT 426, MAT 434, MAT 435, MAT 436, MAT 437, MAT 439, MAT 451, MAT 452, MAT 453, MAT 454, MAT 455, MAT 456, MAT 457, MAT 463, MAT 464, MAT 465, MAT 471, MAT 481, MAT 487.

MEDIEVAL AND RENAISSANCE STUDIES

(18 credits)

The Medieval and Renaissance Studies minor opens to students the diverse cultures of Europe, Western Asia, and Northern Africa that thrived within the period from the third century through the seventeenth. It incorporates offerings from the departments of English, History, Modern Languages and Classics, and Art to explore issues of social structure, philosophy, religion, politics, language, poetry, prose, and artistic expression from an interdisciplinary perspective.

The minor consist of 18 credit hours, typically six courses. Students who elect this minor usually begin their exploration of the period through introductory courses, such as ARH 155, HON 101, HTY 105, or HTY 202, only one of which counts towards the total credits of the minor. Students are encouraged to take courses from all of its disciplines.

The course offerings are as follows:

English

ENG 231 Western Tradition in Literature: Homer through the Renaissance (also listed as MLC 231)

ENG 251 English Literature Survey: Beginning through Neoclassicism

ENG 253 Shakespeare: Selected Plays

ENG 451 Chaucer and Medieval Literature

ENG 454 Elizabethan and 17th Century Lyric and Narrative Poetry

ENG 476 History of the English Language

History

HTY 105 History of European Civilization I

HTY 202 Medieval Civilization

HTY 402 History of Rome

HTY 403 Early Middle Ages

HTY 404 Late Middle Ages

HTY 405 The Renaissance and Reformation

HTY 419 Science and Society until 1800

HTY 423 History of Russia I

HTY 425 History of Germany I

HTY 427 Ideas in European Society I

HTY 455 History of England I

HTY 491 Technology and Society until 1800

History of Art

ARH 155 Art History I

ARH 252 Mediterranean Medieval Art and Architecture

ARH 253 Northern European Medieval Art and Architecture

ARH 255 Italian Renaissance Art

ARH 257 Northern Renaissance Art

ARH 362 Medieval Art and Architecture Seminar

ARH 363 Renaissance Art and Architecture Seminar

ARH 493 Medieval Research Seminar

ARH 494 Renaissance Research Seminar

Modern Languages and Classics

FRE 404 Medieval and Renaissance French Literature

FRE 504 Seminar in Medieval and Renaissance Literature

LAT 482 Medieval Latin

MLC 231 Western Tradition in Literature: Homer through the Renaissance (Also listed as ENG 231)

SPA 425 Medieval Spanish Literature

MODERN LANGUAGES AND CLASSICS

(18 credits)

The minor is offered in French, German, Latin, Russian, and Spanish. The requirements are a minimum of 18 credit hours in the language, 12 of which must be above the Intermediate level. For Russian, 18 hours are also required, with 12 credits of intermediate and above, with the following suggested sequence:

4 credit hours in: RUS 203

4 credit hours in: RUS 204

6 credit hours in: MLC 490.001

2-4 credit hours Independent Study

MULTIMEDIA

(18-22 credits)

The phrase Multimedia signifies the study, invention, and creative use of new information technologies in the service of human expression, education, and communication. The field is deeply rooted in modern communication, the computer, and human sciences.

Multimedia is a fledgling discipline, and all professional career paths within it are pioneering ones, which makes it impossible to precisely describe an optimum curriculum for any part of the field. Each student's studies will emphasize a particular interest area in which she or he will undertake their primary training in classroom, apprenticeship, or atelier modes.

The activities of the Multimedia minor cluster into several tracks. In order to achieve the broadest possible benefits from a minor in Multimedia, the minor is designed to offer choices from a wide variety of different subjects. In consultation with their advisor (or special minor advisor), students will design a unique, coherent curriculum sequence of courses (18-22 credits) to meet their particular interests. Students are encouraged to move beyond the introductory level in at least half of their curriculum and experience courses in different disciplines. Areas of concentration include: graphic design, digital art and imaging, digital music, digital video production, presentation and interactive multimedia design, and software construction and theory. Brochures further describing the program are available in the Dean's Office.

Suggested Curricula

Before entry into the minor the student must have taken either COS 100 or COS 110 or be able to demonstrate a general knowledge of personal computers. Students must also seek permission from a Multimedia advisor to enroll in the minor.

Options

1. Design and Production
 Minor Advisor: Mike Scott, CIT
 Required:
 MDM 206 Multimedia in the Electronic Age 3
 Choose at least 6 credits from the following:
 ART 100 Drawing I 3
 ART 110 2-D Design 3
 ART 120 3-D Design 3
 ART 180 Photography I 3
 ART 200 Drawing II 3
 ART 250 Graphic Design I 3
 ART 350 Graphic Design II 3
 MUY 101 Fundamentals of Music 3
 Choose 9 - 12 credits from the following to include 6 credits of MDM 430:
 MDM 295 Topics in Multimedia 6
 MDM 430 Topics in Multimedia 6
2. Music
 Minor Advisor: Stuart Marrs, School of Performing Arts
 Required
 MDM 206 Multimedia in the Electronic Age 3
 choose at least 15 - 18 credits from the following:
 MUL 101 The Art of Listening to Music: Elements 3
 MUL 202 The Art of Listening to Music II: Historical Survey 3
 MUY 101 Fundamentals of Music 3
 MUS 3xx Digital Music (new course) 3
 MDM 295 Topics in Multimedia 3
 MUS 3xx Internship 3-6
 MUS 3xx Special Project 3-6
 MDM 430 Topics in Multimedia 6
3. Design
 Minor Advisors: Carole Nichols, Public Affairs
 Alan Stubbs, Department of Psychology
 Required
 MDM 206 Multimedia in the Electronic Age 3
 choose at least 3 - 6 credits from the following:
 ART 110 2-D Design 3
 ART 180 Photography I 3
 ART 250 Graphic Design I 3
 ART 350 Graphic Design II 3
 choose at least 3 credits from the following:
 ARH 262 Early Modern Art: From Fauvism to Surrealism 3
 ARH 263 Late Modern Art: From Abstract Expressionism Through New Forms 3
 ARH 351 Art Theory and Criticism 3
 ARH 361 Topics in Art Theory 3
 MDM 295 Topics in Multimedia 3
 PHI 262 Philosophy of Art 3
 PSY 305 Psychological Aesthetics 3
 Choose 9 - 12 credits from the following:
 COS 460 Interactive Computer Graphics 3
 COS 461 Advanced Computer Graphics 3
 MDM 430 Topics in Multimedia 6
 MDM 430 Topics in Multimedia-Computer/Graphic Design Thesis Project* 3
4. Art and Imaging
 Minor Advisor: Owen Smith, Department of Art
 Required
 MDM 206 Multimedia in the Electronic Age
 Choose at least 3 - 6 credits from the following:
5. Video Production
 Minor Advisor: Paula Petrik, Department of History
 Required
 MDM 206 Multimedia in the Electronic Age
 Choose at least 6 credits from the following:
 ART 100 Drawing I
 ART 110 2-D Design
 ART 120 3-D Design
 ART 180 Photography I
 ART 200 Drawing II
 ART 250 Graphic Design I
 ART 350 Graphic Design II
 MUY 101 Fundamentals of Music
 choose 6 - 9 credits from the following to include 6 credits of MDM 430
 MDM 295 Topics in Multimedia
 MDM 430 Topics in Multimedia 6
 MDM 430 Topics in Multimedia- Digital Video Thesis Project* 6
6. Software Design
 Minor Advisor: Larry Latour, Department of Computer Science
 Required
 MDM 206 Multimedia in the Electronic Age
 COS 498 Topics in Computer Science
 MDM 430 Multimedia Systems Design Practicum 3
 Choose at least 6 - 9 credits from the following:
 COS 220 Introduction to Computer Science I
 MDM 295 Topics in Multimedia
 COS 301 Programming Languages
 COS 110 Introduction to Personal Computers using the Macintosh
 Choose 3-6 credits from the following:
 ART 100 Drawing I
 ART 110 2-D Design
 ART 200 Drawing II
 COS 460 Interactive Computer Graphics
 MDM 430 Topics in Multimedia -Scripting 1-

MUSIC

(21-22 credits)

The minor in music is designed to give the student a significant educational experience in the musical arts. An audition is not required for admission, however auditions *are* required for studio instruction and some performing ensembles. a non-music major fee structure applies.

The requirements are as follows:

- 8 credit hours in lower level Music Theory and Literature:
 MUL 200 The Art of Listening to Music: Historical Survey Lab
 MUL 202 The Art of Listening to Music: Historical Survey

*The major thesis project or series of linked explorative minor projects which would demonstrate the students technical knowledge, awareness of issues and developments in the field and creative abilities. With the permission of the student's advisor (for the minor area) this project may also be a project with students in other minor areas such as electronic publishing, interactive multimedia design, and digital video.

MUY 111 Elementary Harmony I 2
 MUY 112 Elementary Harmony II 2
 3-4 credit hours in advanced Music Theory and History:
 MUH 2XX
 MUY 2XX
 4 credit hours in Performance and/or Applied Music:
 MUO XXX
 MUS XXX
 MUE 2XX
 6 credit hours in music electives to be selected in consultation with
 the music minor faculty advisor:
 MUX XXX

PHILOSOPHY

(18 credits)

The requirements for the minor in philosophy consist of 18 credit hours in Philosophy courses with at least 6 credit hours to be taken above the 100 level, as well as the following:

3 credit hours in:

PHI 200 Problems in Recent Philosophy 3
 3 credit hours to be chosen from:
 PHI 210 History of Ancient Philosophy 3
 PHI 312 History of Modern Philosophy 3

PHYSICS AND ASTRONOMY

(21 credits)

Physics 21 credit hours (12 specified and 9 elective).

Required Courses:

PHY 111/112 General Physics I/II

OR

PHY 121/122 Physics for Engineers and Physical Scientists I/II

PHY 236 Introductory Modern Physics

Physics Elective Courses

Three or more courses from the following list which total at least 9 credit hours.

PHY 238 Mechanics

PHY 447 Molecular Biophysics

PHY 454 Electricity and Magnetism I

PHY 462 Physical Thermodynamics

PHY 463 Statistical Mechanics

PHY 469 Quantum and Atomic Physics

PHY 470 Nuclear Physics

PHY 471 Nuclear Physics Laboratory

PHY 472 Geometrical and Fourier Optics

PHY 475 Methods of Mathematical Physics

PHY 480 Physics of Materials

Exceptions to this list may be considered on a case-by-case basis by the Department Chairperson.

Astronomy 21 credit hours (12 specified and 9 elective).

Required Courses:

PHY 111/112 General Physics I/II

OR

PHY 121/122 Physics for Engineers and Physical Scientists I/II

PHY 236 Introductory Modern Physics

Astronomy Elective Courses

Two or more courses from the following list which total at least 9 credit hours.

AST 110 Introduction to Astronomy Laboratory

AST 114 Navigation

AST 215 General Astronomy I

AST 216 General Astronomy II

AST 451 Astrophysics I*

AST 496 Topics in Astrophysics*

These courses may be taken for 1-3 credit hours, as arranged. Exceptions to this list may be considered on a case-by-case basis by the Department Chairperson.

PSYCHOLOGY

(18 credits)

Any 18 hours of Psychology (PSY) courses constitute a minor in Psychology. a minimum grade of "C" must be obtained in each course used to satisfy the Psychology minor. No more than six hours total of PSY 492 and PSY 493 may be used toward the 18 hours. A minimum of 12 Psychology credits must be taken at UMaine.

RELIGIOUS STUDIES

(18 credits)

Traditionally, questions about the ultimate meaning of human existence have been posed in the form of religion. Today we live in a world in which religion and religious ideas are often in serious conflict; it is thus also important to understand some of the problems connected to religion. Courses included in the religious studies minor are designed to help students understand what these questions are, what kind of answers people have found to them, and how societies have given institutional form to the world-views which emerge from the answers. a student who elects this minor should develop an awareness of the broad range of religious phenomena and an ability to analyze and elucidate the significance of such phenomena. All students should begin by taking PHI 105, Introduction to Religious Studies. Thereafter the student should take at least five courses from one of the following subclusters: i.e., five courses from "A," or five courses from "B," or five courses from "C," or the one course from "D." These courses should be taken from at least three different disciplines.

Course Offerings

1. Religion in the Development of Western Civilization ARH 252 Mediterranean Medieval Art and Architecture, ARH 253 Northern European Medieval Art and Architecture, ARH 255 Italian and Renaissance Art, ARH 257 Northern Renaissance Art, ARH 258 Baroque Art and Architecture, CLA 101 Greek Literature in English Translation, CLA 102 Latin Literature in English Translation, CLA 201 Women in the Ancient World, CLA 202 Mythologies of the Near East, North Africa, and Greece, ENG 230 The Bible as Literature, ENG 241 American Literature Survey: Beginnings Through Romanticism, ENG 435 The Bible and Near Eastern Literature, ENG 451 Chaucer and Medieval Literature, ENG 454 Elizabethan and 17th Century Lyric and Narrative Poetry, FRE 404 Medieval and Renaissance French Literature, FRE 405 Seventeenth Century French Literature, HTY 401 History of Greece, HTY 402 Roman History, HTY 403 Early Middle Ages, HTY 404 Late Middle Ages, HTY 405 The Renaissance and Reformation, HTY 433 Greek and Roman Mythology, HTY 499 Contemporary Problems in History-History of Religion, LAT 482 Medieval Latin, MLC 490 Topics in Modern Languages: Myth, Magic, and Mystery: Spiritua Legacies, MUL 101 The Art of Listening to Music: Elements, MUL 120 World Music, MUL 202 The Art of Listening to Music: Historical Survey .
2. Theoretical Perspectives on Religion ANT 120 Religions of the World, ANT 469 Theories of Religion, ANT 470 Religion and Politics, PHI 105 Introduction to Religious Studies, PHI 364 Views of the Self: East and West, PHI 382 Theories of Myth, PHI 490 Topics in Religious Studies, SOC 482 The Sociology of Religion.
3. Religion in the Non-Western World ANT 441 People and Cultures of the Pacific Islands, ANT 451 North American Indian Ethnology, ANT 453 Peoples and Cultures of Mesoamerica, ANT 454 Cultures and Societies of the Middle East, ANT 456 Ethnic Conflict in the Modern World, ANT 460 Peoples and Cultures of the Circumpolar Area, ANT 461 Islamic Fundamentalism, HTY 435 History of China I, HTY 436 History of China II, HTY 437 History of Modern Japan, PHI 286 Religions and Philosophies of the East: Hinduism, PHI 287 Religions and Philosophies of the East: Buddhism.
4. Religion in the Contemporary World PHI 106 Social Issues in Recent Religious and Philosophical Thought

RHETORIC AND WRITING

(18 credits)

This sequence of courses focuses on a broad range of rhetorical and compositional skills such as discourse analysis, critical thinking and argumentation, problem solving, field and library research, and practical writing.

Particularly appropriate for majors in business, scientific and technological fields, a minor in Rhetoric and Writing can be advantageous in today's highly competitive job market where strong communication skills are essential.

The minor consists of courses that treat both concepts and practices; its goal is to enable students to analyze writing situations and conventions (discourse analysis), to convey information clearly and to formulate persuasive arguments (expository writing), and to write effectively in professional contexts. Since most of the courses have prerequisites, students should plan to begin the minor by taking ENG 212, ENG 225, ENG 205, and/or ENG 206 in their *sophomore* year and ENG 317 in their junior year. A member of the English Department will serve as minor advisor to help students plan an appropriate program given their academic background and interests.

The requirements for a minor in Rhetoric and Writing are as follows:

3 credit hours in Discourse Analysis/Narrative and Descriptive

Writing to be chosen from the following:

ENG 205 An Introduction to Creative Writing 3

ENG 206 Descriptive and Narrative Writing 3

ENG 225 Topics in Language 3

6 credit hours in Expository Writing:

3 credit hours in:

ENG 212 Persuasive and Analytical Writing 3

AND

3 credit hours to be chosen from the following courses (with appropriate prerequisites):

ENG 301 Advanced Composition 3

ENG 310 Writing and Careers in English 3

ENG 395 English Internship 3

ENG 401 Topics in Writing 3

9 credit hours in Professional Writing:

3 credits in:

ENG 317 Business and Technical Writing 3

(ENG 317 Should be taken junior year)

AND

6 credits to be chosen from the following:

ENG 417 Advanced Professional Writing 3

ENG 418 Topics in Professional Writing 3

ENG 496 Field Experience in Professional Writing 3

SOCIOLOGY

(18 credits)

The Sociology minor consists of SOC 101, SOC 201, and four electives, for a total of 18 credits. At least three of the four electives must be at the 300-level or 400-level. A grade of C (2.0) must be achieved in SOC 201, and the grades for all 18 credits must average a "C." A minimum of 9 sociology credits (other than SOC 101) must be taken at UMaine.

SOC 101 Introduction to Sociology 3

SOC 201 Social Inequality 3

Four Sociology electives 12

STUDIO ART

(21 credits)

The minor in studio art is designed for non-majors who are interested in developing a basic understanding of art theory, processes, and media. A total of 21 credit hours is required. Transfer credit is subject to approval by the Department of Art studio faculty.

The requirements for the minor in studio art include:

12 credit hours in foundation studio courses:

ART 100 Drawing I

ART 200 Drawing II

ART 110 2-D Design

ART 120 3-D Design

3 credit hours in foundation art history courses:

Choose one of the following:

ARH 155 Art History I

ARH 156 Art History II

6 credit hours in specialty studio area courses:

3-6 credit hours in the following introductory courses:

ART 220 Sculpture I

ART 230 Painting I

ART 240 Printmaking I

OR

3 credit hours in one of the above introductory courses and 3 credit hours in its related intermediate level courses:

ART 320 Sculpture II

ART 330 Painting II

ART 340 Printmaking II

THEATRE

(21-23 credits)

The minor in theatre consist of 21-23 credit hours including these required courses:

15 credit hours in:

THE 112 (or) 113 Masterpieces of World Drama I (or) II

THE 116 Play Production

THE 117 Fundamentals of Acting

THE 118 Stage Makeup

THE 119 Fundamentals of Theatre Practice

Plus 6-8 additional credit hours in any Theatre courses at the 200 level or above provided that prerequisites are met.

WOMEN'S STUDIES

(18 credits)

Students electing the minor in Women's Studies are required to take an 18-hour program of study that consists of the following:

A. 9 hours in three required core (WST) courses:

WST 101 Introduction to Women's Studies

WST 410 Feminist Theory (given Fall semesters)

WST 480 Senior Seminar in Women's Studies (given Spring semester)

B. Nine hours chosen from among the following:

1. WST 201 Topics in Women's Studies

2. WST 301 Intermediate Topics in Women's Studies

3. WST 401 Advanced Topics in Women's Studies

4. Field Experience (three to six hours)

5. WST 298 or WST 498 Directed Study in Women's Studies

6. Approved Electives: CHF 451 Family Relationships, CHF 452

Violence in the Family, COM 405 Women and Communication

EDL 420 Changing Roles of Women and Men in Education,

ENG 246 American Women's Literature, ENG 256 British

Women's Literature, ENG 471 Feminist Literacy Criticism, EN

481 Topics in Women's Literature, HTY 332 Womanhood in

America, HTY 494 Women, History and American Society:

Selected Topics, NUR 420 Women in Health, PHI 439 Feminist

Social and Political Theory, SOC 330 Perspectives on Women,

SOC 345 Women, Crime, and Criminal Justice, THE 470 Women

Playwrights. AS number of "topics" courses in various

departments occasionally focus entirely on women, and other

courses have partial content on women that may make them

suitable as approved electives; other courses have been

proposed that may be approved as electives. For lists of such

courses and their availability, contact the WIC office.

COLLEGE OF NATURAL SCIENCES, FORESTRY, AND AGRICULTURE

G. Bruce Wiersma, *Dean*
Alan S. Kezis, *Associate Dean*

Web Site: <http://www.ume.maine.edu/~nfa/college/nrforag.htm>
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The College of Natural Sciences, Forestry, and Agriculture specializes in programs related to understanding and responsible management of the world's natural resources. It consists of ten departments and one school which offer academic programs at both the undergraduate and graduate level.

The college offers a diversity of programs taught by a faculty which represents the largest assemblage of scientific expertise in Maine. In addition to forestry, wildlife, and a full selection of natural-resource based programs, students can choose programs of study from the full spectrum of biological sciences, marine science, geological sciences, and food science and human nutrition. Students may also prepare for medical school, veterinary school, and other health professions.

The undergraduate programs of the college are designed to develop proficiency in a specific discipline or profession and to provide a broad general education. The college has extensive teaching and research facilities, plus some of the most sophisticated research equipment available anywhere. In addition, with its broad geographic, climatic, and landscape diversity, the state of Maine provides an exceptional outdoor laboratory for students interested in the natural sciences, forestry, and agriculture.

The college has a well-developed, student-oriented academic advising system. Each student has a faculty advisor who assists in program planning and career development. Throughout the undergraduate years, the capabilities, aspirations, and goals of the students are the primary concerns governing the advising process.

In the college, students find an environment small enough to feel that they are more than just a number, but large enough to provide the modern facilities necessary for a comprehensive education preparing them for the challenges of tomorrow.

Students may select a degree program upon entering the college, or may delay a formal choice of major until the sophomore year. In addition to the major, students have the option of selecting one of more than 20 minor areas of concentration. These optional minors range from such disciplines as chemistry, to various humanities and social sciences. Choice of a minor enables students to strengthen their preparation in the major by selecting supporting courses from a related discipline.

The ten departments and one school within the college are responsible for the undergraduate degree programs listed below, as well as for conducting active research programs and training graduate students.

In the following list, programs leading to either the Bachelor of Science or the Bachelor of Arts degrees are listed following the name of the academic unit responsible for administration of each program.

ACADEMIC DEPARTMENTS AND DEGREE PROGRAMS

APPLIED ECOLOGY AND ENVIRONMENTAL SCIENCES

B.S. Sustainable Agriculture

BIOCHEMISTRY, MICROBIOLOGY, AND MOLECULAR BIOLOGY

B.A., B.S. Biochemistry
B.A., B.S. Microbiology
B.S. Molecular and Cellular Biology

BIOLOGICAL SCIENCES

B.A., B.S. Biology (Pre-Medical, Pre-Dental, and General Biology)
B.A., B.S. Botany
B.A. Clinical Laboratory Sciences (Cytotechnology, Medical Technology)
B.A., B.S. Zoology

BIOSYSTEMS SCIENCE AND ENGINEERING

B.S. Animal and Veterinary Sciences (Pre-Veterinary)
B.S. Bio-Resource Engineering
B.S. Bio-Resource Engineering Technology
B.S. Landscape Horticulture

FOOD SCIENCE AND HUMAN NUTRITION

B.S. Food Science and Human Nutrition

FOREST ECOSYSTEM SCIENCE

B.S. Forest Ecosystem Science

FOREST MANAGEMENT

B.S. Forest Engineering (with the Department of Biosystems Science and Engineering)
B.S. Forestry
B.S. Parks, Recreation, and Tourism
B.S. Wood Science and Technology

GEOLOGICAL SCIENCES

B.A., B.S. Geological Sciences

RESOURCE ECONOMICS AND POLICY

B.S. Resource Management and Environmental Policy (Environmental Management and Policy, Agribusiness Management)

SCHOOL OF MARINE SCIENCES

B.S. Aquaculture
B.S. Marine Science

WILDLIFE ECOLOGY

B.S. Wildlife Ecology

INTERDISCIPLINARY DEGREE PROGRAM

B.S. Natural Resources

ADMISSION REQUIREMENTS

Entrance requirements for the college include the following high school units: four years of English, three years of mathematics (selected programs require four years of mathematics and it is encouraged for all programs), two years of social science, and a minimum of two years of laboratory sciences (selected programs require three years of laboratory sciences). One year of fine arts and one year of computer science are highly recommended. Two years of a single foreign language are required for B.A. programs only.

GRADUATION REQUIREMENTS

The college offers both Bachelor of Science and Bachelor of Arts degrees. Each program has its specific curriculum and all include the general education requirements of the university. To obtain a Bachelor of Arts degree students must complete, within their program of study, 27 credit hours in courses meeting the human values and social context general education criteria of the university. At least 12 credit hours of these must be at the 200 level or above. In addition, students must complete a minimum of 72 credit hours outside their major. (If a particular major requires courses in another discipline, either within the same department or in another department, those credit hours may still count toward the 72 credit hours.) Depending on the particular program, the degree will require from 120 to 141 total credit hours for graduation. In addition, each student must achieve a grade point average of 2.0 over all courses taken. Some programs may also require minimum grade point averages for courses within the major. Students should consult individual program sections about specific details concerning a particular major.

HONORS PROGRAM

First year students of marked academic ability are invited to apply to the college honors secretary for admission to the sequence of honors courses listed here. The work of the first and sophomore years, under the direction of staff drawn from all colleges of the University, provides the stimulus and guidance which should enable a superior student to begin building a perspective of the liberal arts and sciences and to lay a foundation for more specialized work to come. The Honors Program climaxes in a research project and thesis to be written during the senior year, that treats some special area within the student's major field. Students may be admitted at any stage of the Honors Program up to the end of the sophomore year. Of the courses listed below, HON 101 (Honors Seminar I), HON 102 (Honors Seminar II), HON 301 (Honors Group Tutorial I) and HON 302 (Honors Group Tutorial II) are taken in common with students from other colleges within the University. These courses, plus HON 397 (Honors Specialized Study), HON 498 (Honors Directed Study) and HON 499 (Honors Thesis) constitute the core of the program.

Additional information about the Honors Program and a full description of courses may be found elsewhere in this catalog.

MINORS OFFERED IN THE COLLEGE OF NATURAL SCIENCES, FORESTRY AND AGRICULTURE

A *Minor* is a secondary specialization in a discipline or in a formal interdisciplinary program which complements or augments the *Major* program. Students choosing to take a minor usually do so either to strengthen their preparation in the major program or to

prepare themselves for a broader range of career opportunities. Once all of the requirements of the minor program are met, the Associate Dean's office will certify to the Director of Student Records that the minor has been completed.

Minors are strictly optional: you are not required to complete a minor. If you do decide to complete a minor, the requirements of the minor are in addition to the specific requirements of your major. The specific requirements for each approved minor in the College of Natural Sciences, Forestry, and Agriculture is detailed in the pages that follow. *Minors offered by other colleges are listed under their respective sections.* Free electives are normally used to satisfy minor requirements and it normally will not involve additional credits to those required for completion of the major.

If you decide to work towards a minor program in addition to the major, you need to visit the Associate Dean's Office, 106 Winslow Hall, to declare your intentions. If this is not done, we cannot guarantee that proper certification of the minor will appear on the transcript. If you should begin work on a minor but fail to meet all of the requirements, there is no penalty: no reference to the minor will appear on the transcript.

AGRIBUSINESS AND RESOURCE ECONOMICS

(18 credits)

The requirements for the minor in Agribusiness and Resource Economics include:

INT 110 Modern Economic Problems
REP 254 Introduction to Production Economics
REP 458 Principles of Resource Business Management
REP 459 Resource Based Business Finance
REP 465 Food and Fiber Marketing

Plus two courses selected from the following list:

REP 286 Resource Policy Analysis
REP 371 Introduction to Natural Resource Economics and Policy
REP 468 Quantitative Analysis and Forecasting
REP 471 Resource Economics
REP 474 Land Use Planning

ANIMAL AND VETERINARY SCIENCES

(18 credits)

Prior to enrolling in the minor, students must consult with the chairperson of the department of Biosystems Science and Engineering to select the courses most appropriate to their background and career goals, and to arrange any course substitutions, which may be appropriate.

The requirements for the minor in Animal and Veterinary Science include:

AVS 145 Animal Science
The student selects two courses from the following list:
AVS 249 Lab Animal Technology
AVS 285 Applied Avian Biology
AVS 346 Dairy Cattle Technology
AVS 348 Livestock Management
AVS 351 Animal Science Techniques

AVS 445 Sustainable Livestock Production Systems

The student selects an additional two courses from the following list:

AVS 437 Animal Diseases
AVS 455 Animal Nutrition
AVS 461 Animal Breeding
AVS 480 Physiology of Reproduction
AVS 462 Feed Technology

Plus one of the following:

AVS 463 Feeding Companion Animals
AVS 466 Feeding Dairy Cattle Plus 3 additional credits in AVS courses

BIOCHEMISTRY

(18 credits total)

BMB 322 Biochemistry

BMB 322L Biochemistry Laboratory

BMB 450 Principles of Biochemistry

BMB 460 Advanced Biochemistry

Plus 8 credits of upper level courses selected from courses offered by the department and required for the major

BIOLOGY

(18 credits minimum)

BIO 100 General Biology

Plus three of the following four listings:

BIO 201 Plant Biology

OR

BIO 202 The Plant Kingdom

BIO 204 Animal Biology

BIO 280 Introduction to Molecular and Cellular Biology

BMB 300 General Microbiology

AND

BMB 305 General Microbiology Laboratory

Plus one upper-level course that meets the requirements of the departmental major, chosen from the two *participating* departments (BMMB, BSC).

EDUCATION (TEACHER CERTIFICATION)

The Maine Department of Education has the sole authority to issue certificates for teaching. However, the Office of the Dean of the College of Education and Human Development advises and assists qualified students in obtaining state certification at the elementary and secondary school level. In addition to required course work and professional training, the program requires a full semester of student teaching. All students interested in teacher certification should contact the College of Education and Human Development early during their program.

Students specifically interested in teaching in the agricultural sciences can obtain certification through cooperation with the University of New Hampshire. Students spend a semester at the University of New Hampshire completing teacher education courses related to the agrisciences. Required student teaching can be completed in a high school in Maine or New Hampshire.

FOOD SCIENCE

(18 credits)

The courses which make up the minor in Food Science are to be selected from the following list following consultation with member of the food science faculty. This minor may be of interest to science of business majors who wish to seek employment in the food industry or with government agencies associated with food.

The requirements for the minor in Food Science are:

FSN 330 Introduction to Food Science

The additional 15 credits may include :

FSN 340 Food Processing Laboratory

FSN 350 Food Process Sanitation

FSN 382 Introductory Food Chemistry

FSN 438 Food Microbiology

INT 482 Pesticides and the Environment

FSN 502 Food Preservation

FSN 582 Major Food Constituents

FSN 583 Microbial Ecology and Foods

FSN 585 Sensory Evaluation of Foods

FSN 587 Food Analysis

REP 465 Food and Fiber Marketing

Also, not more than 6 credit hours of FSN 397 - Independent Studies

and not more than 6 credit hours of FSN 397 - Field Experience in Food Science and Human Nutrition may be counted towards the 18 credit total.

FOREST PRODUCTS

(18-22 credits)

WSC 212 Introduction to Wood Science and Technology I *

WSC 213 Hand Lens ID of Wood Lab *

WSC 314 Wood and Wood Fiber Processing *

WSC 318 Wood and the Environment

WSC 319 Wood Deterioration and Protection

WSC 345 Special Problems

WSC 416 Wood Anatomy

WSC 425 Mechanical Properties of Wood

Students minoring in Forest Products must be assigned an advisor from the Faculty of Wood Science and Technology in the Department of Forest Management, and must obtain the Advisor's signature when registering for WSC courses.

GEOLOGICAL SCIENCES

(18 or 20 credits)

A minor in Geological Sciences consists of minimum of 18 hours of courses in the department, no more than 8 of which are at the 1xx level. Majors in Geological Sciences must maintain a 2.0 cumulative GPA in all geology, required ancillary science, mathematics, and computer science course work. No grade below a C- will be accepted toward these requirements.

GES 101 Introduction to Geology

OR

GES 106 Geology for Engineers

Plus the following courses:

GES 102 Environmental Geology

GES 330 Minerology

GES 333 Introduction to Petrology

Plus an upper level geology elective.

HUMAN NUTRITION

(18 credits)

The courses which make up the minor in Human Nutrition are to be selected from the following approved list in consultation with a member of the Human Nutrition faculty. Courses will be chosen to complement each student's academic background and to further individual career goals. While the minor is open to all NSFa students, it may be of particular interest to students majoring in Child Development. The minor *does not* lead to credentialing in the field of dietetics without further study.

The courses from which the minor in Human Nutrition is selected include:

FSN 101 Introduction to Food and Nutrition

OR

FSN 170 Fundamentals of Nutrition

AND

FSN 103 Family Food Management

FSN 200 Food Service Systems Management I

FSN 201 Food Service Systems Management II

FSN 270 World Food and Nutrition

FSN 401 Community Nutrition

FSN 280 Human Nutrition for the Health Professions

FSN 301 Life Cycle Nutrition

FSN 330 Introduction to Food Science

FSN 471 Recent Advances in Food and Nutrition

FSN 410 Human Nutrition and Metabolism

FSN 420 Nutrition in Disease and Diet Therapy

Forestry majors already choose between WSC 212/213 and WSC 314, so the total requirement of this minor for Forestry majors is 18 credits. For others, it is 18 credits.

LANDSCAPE HORTICULTURE

(17-22 credits)

The requirements for the minor in Landscape Horticulture include:

AES 140/141 Soil Science/Lab
BIO 101 Introduction to Botany
LHC 110 Horticulture
LHC 370 Seminar in Landscape Horticulture
Plus two courses from the following list:
LHC 120 Herbaceous Landscape Plants
LHC 221 Woody landscape Plants I
LHC 222 Woody Landscape Plants II

Plus one course from the following list:

LHC 223 Plant Production
LHC 325 Turfgrass Management
LHC 328 Landscape Design

Plus one additional course selected from the following list:

LHC any 200 level or higher course from the above list
AES 457 Plant Pathology
BIO 201 Plant Biology/Lab
BIO 327 Introductory Applied Entomology
BIO 452/453 Plant Physiology/Lab
BIO 464 Taxonomy of Vascular Plants
LHC 410 Plant Propagation

MARINE RESOURCES

(18 credits)

The minor in Marine Resources is designed for students in the College of Natural Sciences, Forestry, and Agriculture who wish to apply the knowledge and skills developed through their major programs to the problems of the marine environment. The minor consists of a common core plus two options (marine technology and marine resource utilization).

The requirements for the minor in Marine Resources include (prerequisites for courses are listed in parentheses):

SMS 220 Introduction to Marine Resources
SMS 301 Concepts in Oceanography
OR

SMS 270 Introduction to Oceanography
REP 471 Resource Economics

Plus ten or more credit hours of courses from the following option lists, chosen to include at least two courses from one of the two areas of specialization.

Marine Resource Utilization Option

BIO 472 Fishery Biology
BIO 473 Biology of Algae
INT 319 General Ecology
REP 371 Introduction to Natural Resource Economics and Policy
REP 577 Economics of Public Choice
SMS 211 Introduction to Aquaculture
SMS 340 Finfish Aquaculture
SMS 409 Shellfish Aquaculture
SMS 420 Fish Health Management
SMS 467 Fish Nutrition and Feeding

Marine Technology Option

BRE 469 Agricultural Process Engineering
BRE 550 Simulation of Biological and Physical Systems
CIE 558 Coastal Engineering
CIE 559 Numerical Modeling of Lake and Estuarine Processes

MICROBIOLOGY

(18 credits)

BMB 322 Biochemistry
BMB 322L Biochemistry Laboratory
BMB 300 General Microbiology

BMB 305 Microbiology Laboratory

Plus 9 credits of upper level microbiology courses required for the major.

MOLECULAR AND CELLULAR BIOLOGY

(18 credits)

BIO 280 Cellular and Molecular Biology
BMB 322 Biochemistry
BMB 322L Biochemistry Laboratory
BMB 400 Molecular Genetics

Plus 8 credits of upper level courses offered by the department and required for the major.

NATURAL RESOURCES

(18-19 Credits)

NRC 100 Introduction to Natural Resources
NRC 489 Critical Issues in Natural Resources Policy

One of the following:

AES 140 Soil Science

OR

GES 101 Introduction to Geology

One of the following:

WLE 200 Ecology

OR

INT 319 General Ecology

One of the following:

BIO 205 Field Natural History of Maine

OR

BIO 300 Field Marine Biology

One of the following:

REP 371 Introduction to Natural Resources Economics and Policy

OR

NRC 324 Environmental Protection Law and Policy

OR

INT 330 Waste Management

OR

REP 381 Sustainable Development Principles and Policy

PARKS, RECREATION, AND TOURISM

(19 credits)

Students minoring in Parks, Recreation, and Tourism must be assigned an advisor from the Faculty of Parks, Recreation and Tourism in the Department of Forest Management and must obtain the advisor's signature when registering for these courses.

LHC 429 Park Planning and Design
PRT 352 Forest Recreation Management
PRT 452 Environmental Interpretation
PRT 470 Principles of Tourism
PRT 480 Wilderness and Wild and Scenic River Management
PRT 355 Visitor Behavior and Management
OR
PRT 454 Cultural Resource Management
OR
PRT 471 Commercial Recreation

PLANT BIOLOGY

(19-20 credits)

The minor in Plant Biology is designed for non-majors who would like to develop a basic understanding of the structure, function, and diversity of plants. The requirements for the minor in Plant Biology include the following:

An introductory course in Botany (BIO 202 The Plant Kingdom, BIO 201, Plant Biology; or BIO 101, General Botany)
BIO 435 Plant Anatomy

BIO 452 Plant Physiology
BIO 453 Plant Physiology Laboratory
BIO 464 Taxonomy of Vascular Plants

An additional 3-4 credits of BIO courses numbered above the introductory level.

PLANT SCIENCE

(17-22 credits)

The requirements for a minor in Plant Science include the following:

AES 140/141 Soil Science/Lab
BIO 452/453 Plant Physiology/Lab

Plus **one** course from the following list:

AES 100 Plant Science

OR

BIO 101 Introductory Botany

Plus **one** course from the following list:

AES 101 Cropping Systems

LHC 110 Horticulture

LHC 223 Nursery and Garden Center Operations

Plus **two** courses from the following list:

AES 401 Advanced Crop Management

AES 403 Weed Ecology and Management

AES 440 Soil Chemistry and Plant Nutrition

AES 449 Soil Organic Matter and Fertility

AES 457 Plant Pathology

AES 479 Crop Ecology and Physiology

BIO 464 Taxonomy of Vascular Plants

LHC 410 Plant Propagation

SOIL SCIENCE

(17-22 credits)

The requirements for a minor in Soil Science include the following:

AES 140/141 Soil Science/Lab

AES 440 Soil Chemistry and Plant Nutrition

AES 442 Soil Taxonomy

AES 444 Soil Morphology and Mapping
Plus at least **three** from the following list:

AES 100 Plant Science

AES 105 Principles of Sustainable Agriculture

AES 344 Soil and Water Conservation

AES 449 Soil Organic Matter and Fertility

FTY 457 Forest Watershed Management

GES 109 Geology of Maine

SUSTAINABLE AGRICULTURE

(17-22 credits)

The requirements for a minor in Sustainable Agriculture include the following:

AES 101 Cropping Systems

AES 105 Principles of Sustainable Agriculture

AES 140/141 Soil Science/Lab

REP 381 Sustainable Development Principles and Policies

Plus **three** courses from the following list:

AES 401 Advanced Crop Management

AES 403 Weed Ecology and Management

AES 449 Soil Organic Matter and Fertility

AES 479 Crop Physiology

INT 482 Pesticides and the Environment

INT 450 Design and Management of Agroecosystems

ZOOLOGY

(18 credits)

Required Courses:

BIO 100 Basic Biology

BIO 204 Animal Biology

10 credits selected from the following list:

BIO 280 Introduction to Molecular and Cellular Biology

INT 219 Introduction to Ecology

OR

INT 319 General Ecology

Any Zoology course at the 300 level or above *EXCEPT* that BIO 303, 305, 404, and 421 are excluded.

DIVISION OF LIFELONG LEARNING

Robert C. White, *Director*

Web Site: <http://www.ume.maine.edu/~ced/lifelongtop.hvtml/>

EMAIL: CEDSS@MAINE.MAINE.EDU

Telephone: (207) 581-3305

FAX: (207) 581-3141

The Division of Lifelong Learning promotes learning as a continuous and lifelong process and provides a broad spectrum of innovative and alternative educational programs and services for the ongoing needs of primarily adult learners and organizations. Enabling educational access and equality of opportunity, the Division extends University resources to non-traditional and non-matriculating constituencies, and serves as an important linkage between the University of Maine, the people of Maine, and Maine's work force. By offering tailor-made, instructional delivery systems for external constituencies (e.g., off-campus, on-site instruction; interactive television; video conferencing; computer conferencing; and other forms of electronic instruction) the Division provides lifelong learning opportunities that reflect the University's outreach mission and land-grant heritage. Established in 1996, and composed of the Bureau of Labor Education, the Continuing Education Division, the Onward Program, the Peace Studies Program, the Summer Session and the Women's Resource Center, the Division of Lifelong Learning provides experiences that enhance quality of life, empower individuals and organizations, and improve professional practice.

The **Bureau of Labor Education** conducts educational programs, presentations and research on labor and labor related issues of interest to workers, students, public policy makers, and leaders in government, labor, and education. Topics of interest include: employment law, occupational health and safety, labor/management relations, leadership development, labor law, discrimination, sexual harassment, Americans With Disabilities Act, productivity, workplace innovations, the global economy and competitiveness.

The **Continuing Education Division** facilitates the educational aspirations of part-time, evening, weekend, on-campus and distance students who are working toward an undergraduate or graduate degree, or who are taking credit courses and/or non-credit courses for personal and professional growth. The Division also conducts professional development certificates programs, in-house contract programs, and community programs designed to meet the educational needs of the Maine workforce or the lifelong learning pursuits of Maine citizens.

The **Onward Program** offers special academic and support services to assist non-traditional, low income students and students with disabilities to achieve their educational goals. Services offered include college preparatory courses in writing, reading, mathematics, and science; individual and group counseling; tutoring; and services for students with disabilities.

The **Peace Studies Program** addresses critical issues of conflict, violence, social justice, and nonviolent conflict resolution, from the personal to the global level. The Program offers academic courses, a lending library, educational programs, research symposia, and summer institutes and outreach projects in conflict management. Through these various forums the Program infuses concerns for peace into the campus and community, and works with other organizations in Maine to provide information and skills for building a nonviolent society.

The **Summer Session** offers courses and programs to meet the needs of full-time and part-time, day, evening and weekend, on-

campus and distance students during the months of May, June, July, and August. Serving both degree and non-degree students, the Summer Session offers over 500 courses in three-week, five-week, six-week, and eight-week calendars to those seeking educational experiences for personal and/or professional growth.

The **Women's Resource Center** provides educational and cultural opportunities that further women's personal and professional development, and promotes a broader understanding of the diverse experiences of all women. The Women's Resource Center provides linkage with women and women's organizations throughout the state.

DIVISIONAL PROGRAMS

BACHELOR OF UNIVERSITY STUDIES

The Bachelor of University Studies presents to the highly motivated adult part-time student the opportunity to coordinate the offerings of the Continuing Education Division and Summer Session into an individually planned degree program. This program is designed specifically and solely for adult part-time students.

The program is offered for many individuals: those who did not continue directly to higher education after high school and who find that family, job, and other responsibilities do not allow a full-time program of study; those who have discontinued college or university programs and who now wish to re-enter a degree program; those with associate degrees who may wish to pursue a broader based baccalaureate program.

The Bachelor of University Studies is not intended to duplicate or to displace proven current programs of offerings of the University or of other schools and colleges. The degree differs in two major respects from traditional B.A. and B.S. degrees. First, it is offered only through the Continuing Education Division and only for adults who can attend the University on a part-time basis. Second, each student, in consultation with a C.E.D. advisor, will design a program leading to specific educational goals but not necessarily within any one department, division, school, or college. Individual plans are approved by an advisory committee composed of representatives of each of the University's colleges. The program is designed to be flexible and adaptable to the needs of the individual part-time adult student. Prior to the submission of a University of Maine admission application form, prospective students must meet with an advisor of the Continuing Education Division. For an appointment, or for further information call (207) 581-3142.

BUREAU OF LABOR EDUCATION

The Bureau of Labor Education, established in 1966, conducts educational programs, presentations, and research on labor and labor related issues of interest to workers; students; leaders in government, labor, and education; and public policymakers. General topics include employment law, occupational health and safety, labor/management relations, leadership development, and labor economics. The Bureau also analyzes and speaks on timely issues involving such topics as

discrimination and sexual harassment, the Americans With Disabilities Act, productivity, workplace innovations, the global economy and competitiveness. For more information on the Bureau, or to request a program, call (207) 581-4124. Fees, charges, and program costs are determined by arrangement.

CONTINUING EDUCATION DIVISION

The Continuing Education Division coordinates the part-time study of non-traditional and non-degree students on the Orono campus and in a wide geographical area surrounding the Orono campus. Over 450 courses are conducted each year during the late afternoon and evening.

The Division provides a source of continuing education for mature and qualified persons who wish to supplement and earlier education. Courses offered may sometimes be applied toward degree programs or may be primarily for professional or personal use. However, all programs offered are designed to prepare adults to meet the challenge to change and to provide experiences in learning which will lead to a fuller and richer life.

Adult students in Continuing Education Division classes have varied backgrounds and interests. Most of them carry on full-time occupations, have graduated from high school some time ago and have determined for themselves the need for earning a degree for specific courses to be used for personal or occupational development. A number of students who are recent high school graduates are beginning their college career by enrollment in C.E.D. classes.

A large variety of degree credit courses are available on campus as well as at selected outreach centers. Courses offered may be for degree credit or non-degree credit.

Academic advisors are available to advise students on course selection and registration procedures. Regular tuition rates are charged for courses offered. Adults who wish to enroll in a C.E.D. course are encouraged to visit the C.E.D. office in Chadbourne Hall, (207) 581-3142.

CUSTOMIZED IN-HOUSE CONTRACT TRAINING

The University of Maine provides customized, on-site training programs designed to meet specific organizational needs. Our instructors are professionals selected for their subject knowledge, teaching effectiveness and training expertise.

DISTANCE LEARNING

The Continuing Education Division and Summer Session offer approximately 75 distance education courses each year through technology such as interactive television, video conferencing, teleconferencing and asynchronous modes like computer conferencing, tape delay, and World Wide Web delivery. These courses originate from a wide variety of academic departments, and they are transmitted throughout Maine and beyond its borders to national and international audiences.

INSTITUTES

(NON-CREDIT CONTINUING EDUCATION COURSE OFFERINGS)

An appropriate number of Continuing Education Units (CEUs) will be awarded by the University of Maine to those who satisfactorily complete a course.

The CEU, generally recognized throughout the country, has been adopted as a uniform means of recording, measuring, and recognizing efforts in noncredit, post-secondary education. The nationally recognized CEU is defined as ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction. Permanent records will be maintained by the Continuing Education Division. An official transcript showing the course titles and the number of CEUs earned will be issued upon request. The Continuing

Education Division is responsible for the administration of the CEU programs. CEUs may not be converted to degree credit.

ONWARD PROGRAM

The Onward Program offers special academic services to students enrolled at the University of Maine. Services include college preparatory courses in writing, mathematics, science and reading; individual and group counseling; tutoring; and services to students with disabilities.

All program services are designed to assist non-traditional students, low income students and students with disabilities to achieve their educational goals. At the heart of the Onward Program is the one-to-one personal involvement and contact, especially the development of a close personal relationship between student and staff.

Students who want more information about these services or who feel they could benefit from participation in these services should contact the Onward Program, 5757 Onward Building, University of Maine, Orono, ME 04469-5757. Phone: (207) 581-2319/2320.

Counseling

The Onward Program counselors help students, through individual and small group counseling, to achieve their academic, vocational and personal goals. Counseling provides students with opportunities to gain information, explore values, make decisions, address concerns and resolve problems and conflicts. Counselors provide a safe, confidential atmosphere where students may discuss and explore attitudes, feelings, values, plans, life styles and problems. Individuals requiring ongoing therapy will be provided with an appropriate referral. Peer Advisors, a special group of upperclass students, assist Counselors in providing support and orientation activities for the new students.

Office of Services for Students with Disabilities

The Counselor/Coordinator of Services for Students with Disabilities facilitates the education of students with physical, emotional or learning disabilities by providing a point of coordination for special services they may need while attending the University of Maine.

Some of the services provided or coordinated for disabled students are advising, special orientation to campus, readers, recorders, the ordering of taped texts, classroom relocation, priority registration, mediation and advocacy, classroom accommodations, as well as personal, educational, and vocational counseling. Students believed to be learning disabled without documentation can be screened through this office and referred for assessment outside of the University.

The Counselor/Coordinator of Services for Students with Disabilities has an office in the Onward Building and will be happy to supply further information and answer questions. Students are encouraged to contact the Counselor/Coordinator of Services for Students with Disabilities, 5757 Onward Building, University of Maine, Orono, ME 04469-5757. Phone (207) 581-2319. TTY for the Deaf (207) 581-2311.

Tutoring

The Onward Program provides tutorial services in 100 and 200 level courses for students who need academic assistance related to their course work. Tutorial assignments are made in small groups of four students, all of whom have the same course and professor. By working together, students learn how to process course material as well as sharpen their reasoning and questioning skills. Sessions are process-oriented, learner centered and require the active participation of each group member.

Requests for peer tutors are accepted during the first eight (8) weeks of the semester or until funds are exhausted. Assignments are

made based upon the availability of qualified peer tutors, funding and course demand. For further information, contact the Onward Tutor Program at (207) 581-2319.

Onward College Preparatory Courses

Onward Courses earn no degree credit. Grades earned are calculated into the semester grade point average. Each college determines how developmental course grades will be treated in the accumulative grade point average.

Onward courses and descriptions can be found in the course description section of this catalog. Refer to index for page number.

PEACE STUDIES

213 The Maples, (207) 581-2609.
Contact Person: Barbara Blazej

Rationale and Requirements

Peace Studies at the University of Maine focuses on research and study about basic issues confronting humankind as it approaches the twenty-first century. It deals with the problem of violence defined in psychological, economic, political and ecological terms. It seeks to understand violence and its causes, to explore short- and long-term strategies for eliminating the causes of violence and to develop skills for peaceful resolution of conflict. By encouraging individuals to act on their understanding of the causes of violence, it seeks the creation of a more peaceful society and world.

The program takes an interdisciplinary, global and international approach to: threats of force and use of force in international relations, including arms control and external involvement in civil wars; international law and organization; human rights, defined in the broadest sense; oppression of and discrimination against social groups based on gender, race, class, ethnicity and other distinctions; political oppression in general and economic exploitation of developing countries; and the deterioration of the world environment.

Through its academic concentration, lending library, lectures, conferences and other educational forums, Peace Studies infuses concerns for peace into the campus and UMaine System, and joins with the people of Maine in sharing information and skills in the pursuit of peace.

Administrative Structure

Peace Studies is administered by a part-time faculty director, in collaboration with a Steering Committee. Members of the Steering Committee are drawn from departments and programs across the university. Additionally four standing committees—Curriculum, Research, Public Education and Fundraising/ Development—assist in program planning and development.

Enrollment

Students who wish to enroll in the Peace Studies Interdisciplinary Course Concentration should contact the Curriculum Coordinator at the Peace Studies Program Office, 213 The Maples, (207) 581-2609, for further information or assistance. Enrollment is open to all undergraduate students.

Requirements

The Peace Studies Interdisciplinary Course Concentration is an 18-credit program, as follows:

I. Required Core Courses

(9 credits)

PAX 201 Introduction to Peace Studies

PAX 410 Underpinnings of Peace: Critical Perspectives

PAX 490 Senior Capstone in Peace Studies

II. Elective Courses

(9 credits)

A. International Politics and Conflict

Asia

HTY 442 The United States and Vietnam: a History

Europe

HTY 409/410 20th Century Europe (1914-1945 and 1945-present)

HTY 411 The Holocaust

HTY 424 History of Russia II

POS 335 Major Governments of Western Europe

POS 336 Government and Politics in Russia and Former Soviet Territories

Latin America

HTY 448 Latin America: Reform and Revolution

POS 468 Politics of Latin America

Middle East/Africa

ANT 454 Cultures and Societies of the Middle East

HTY 446 History of Modern Middle East (1800 - Present)

POS 467 African Politics

POS 469 Politics of the Middle east

Other

ANT 456 Ethnic Conflict in the Modern World

ECO 337 Comparative Economic Systems

HTY 278 American Military History

HTY 280 Naval History

PHI 240 Social and Political Philosophy

POS 241 Introduction to Comparative Politics

POS 273 International Relations

POS 374 American Foreign Policy

POS 377 International Law

POS 475 International Security Analysis

POS 573 Problems in International Politics

B. Interpersonal, Structural, and Environmental Violence

ANT 470 Religion and Politics

CHF 452 Violence in the Family

ECO 336 Marxian Economics

FSN 270 World Food and Nutrition

HON 302 Honors Tutorial Social and Behavioral Sciences-Hunger in the U.S. and the World

HTY 479 Environmental History

INT 525 Tropical Deforestation Seminar

NRC 100 Introduction to Natural Resources

PSY 339 Political Psychology

REP 281 World Food Demand, Population and World Food Supply

SOC 201 Social Inequality

SOC 202 Social Problems

SOC 208 Problems of Violence and Terrorism

SOC 319 Domestic Violence and Social Structure

SOC 329 Sociology of Gender

SOC 330 Perspectives on Women

SOC 338 Race and Ethnicity

SOC 347 Wealth, Power and Prestige

C. Conflict Resolution and Social Change

AES 105 Principles of Sustainable Agriculture

ANT 465 Political Anthropology

BUA 631 Collective Bargaining

COM 347 Argument and Critical Thinking

COM 403 Persuasion and Social Influence

ECO 330 Humanistic Economics

ECO 338 Economic Development
HTY 496 Protest and Reform in Nineteenth-Century America
INT 105 Environmental Policy
LIB 500 Graduate Seminar in Liberal Studies-Ethics of Care
PHI 230 Ethics
PHI 335 Contemporary Ethics
PHI 344 Theories of Justice
POS 378 World Order Through International Organization and Law
PSY 565 Attitudes and Opinions
REP 381 Sustainable Development Principles and Policies
SOC 314 Law and Society
SOC 425 Sociology of Social Policy and Social Change
SOC 465 Evolution, Revolution, and the Future
WLE 480 International Conservation

Students must select courses from *at least two of the three areas*, and are encouraged to consider a range of courses from the introductory to the advanced level. Students also have the option of taking PAX 398 (Topics in Peace Studies) as one of their electives. Additionally, various departments offer "topics" courses relating to Peace Studies that may be counted as electives, with the director's approval. For example, approved topics courses would include PHI 465-Advanced Topics in Philosophy-(Democracy, Justice and the Modern State); CHF 404-Selected Topics in Child Development and Family Life-(Marital and Family Conflict) and (Cross-Cultural Perspective on Family Conflict); and ENG 129-Topics in English-(American Cultural Intersections and Utopian Literature).

Peace Studies courses and descriptions can be found in the Course Description section of this catalog. Refer to index for page number.

SUMMER SESSION

The Summer Session, established in 1895, is designed to meet the needs of regularly enrolled college students, educators, and those who seek cultural and professional growth in specific fields. Regularly enrolled students of the University of Maine and other collegiate institutions likewise find an opportunity to make up work they have missed during the regular school year or to secure additional credits in anticipation of individual needs. Those not engaged in formal study who desire to attend the session for general purposes may do so when prerequisites are met. Credit earned in the Summer Session is fully recognized and may be counted toward the degrees which the University of Maine confers or may be transferred to other colleges and universities.

To allow students the greatest degree of flexibility in scheduling, 7 three-week sessions, 2 five-week sessions, 2 six-week sessions and 3 eight-week evening sessions are scheduled between mid May and the end of August.

The Summer Session Office is located in 122 Chadbourne Hall, (207) 581-3142. Students who are not matriculated in one of the colleges of the University may receive academic advising in the Summer Session Office for planning their educational programs.

WINTER SESSION

Winter session, late December and early January, the time between the end of the Fall Semester and the beginning of Spring Semester provides students with opportunities to accelerate programs

of study; explore new and exciting academic options; or enjoy a two-week study abroad venture. For extremely bright and motivated students looking toward innovative interdisciplinary opportunities; students wishing to improve their grade point averages; high-risk students; athletes needing another course for eligibility; or international students finding themselves on campus anyway, Winter Session is an appealing option. Through this intense academic experience, students may focus on a major area or explore novel interests through a variety of creative and experimental offerings.

Students who take part in Winter Session and May term for four years could eliminate an entire academic year of study or graduate in December instead of May, thus accelerating their program of study significantly. Students' fall or spring academic loads can be lightened through participation in Winter Session, a particularly helpful option if they have scheduled difficult courses requiring extra time and effort.

The University of Maine is interested in and committed to multicultural diversity. Winter Session supports this commitment while working with colleges and departments to provide study abroad opportunities for students studying abroad for an abbreviated period of time rather than an entire semester allows students to gain culture understanding with much less expense and schedule adjustment.

For students receiving financial aid, Winter Session counts toward the Spring semester award. Students can register now through the Continuing Education Division.

WOMEN'S RESOURCE CENTER

The Women's Resource Center, located at 101 Fernald Hall, was established in the fall of 1991 to promote and maintain an inclusive, positive and supportive climate conducive to women's personal and professional development at the University of Maine. The Center, which comes under the Division of Lifelong Learning arm of the University, serves as a resource for individuals and organizations, offering information and referrals for women's programs and services on and off campus, providing advocacy and collaboration to help women with special needs and concerns, and bringing together women with similar values and goals.

The Women's Resource Center employs work-study students who contribute to the work of the office as well as develop projects that reflect their interests and skills. The staff and students of the Women's Resource Center work closely with the Student Women's Association, a student run organization that advocates women's rights, sponsors educational programs, and provides a positive and supportive environment conducive to personal expression.

The Women's Resource Center promotes a closer relationship between the women on the University of Maine campus and women in the larger Maine community, reaching out to women's programs and initiatives and providing support and guidance, including mentoring opportunities with women activists and gender equity programs for girls in area high schools. In addition to an extensive collection of book, periodicals, and videos of interest to women, the Center offers programs, provides meeting space, produces and distributes a calendar of events by and about women and promotes within the University community a broader understanding of the diverse experiences of all women. For more information call (207) 581-1508.

DEPARTMENTS OF INSTRUCTION

ANTHROPOLOGY

Professor Sanger (Chairperson)
Professors Acheson, Faulkner, Ives, Munson, Roscoe
Associate Professors Hornsby, Mahmood
Assistant Professors Sandweiss, Sobolik

Anthropology is the study of human cultures, societies, and behavior in all parts of the world throughout all periods of history. There are four sub-disciplines: archaeology, the study of historic and prehistoric cultures and civilizations; socio-cultural anthropology, which is concerned with current cultures of all degrees of complexity; physical anthropology, the biological aspects of the human species; and anthropological linguistics, which is concerned with the scientific study of language and its relationship to thought and society. In the past, anthropologists tended to study people in small, tribal societies. In recent decades, more attention has been given to peasantry and industrialized, urban societies and to the application of anthropology to understanding problems of these societies.

The Department of Anthropology focuses on archaeology and socio-cultural anthropology. Training in linguistics may be obtained through the linguistics course concentration. Courses in biological/physical anthropology also are offered from time to time. In addition, the Department offers courses in folklore, oral history, and geography, which are closely related to anthropology.

DEGREE PROGRAMS

The Anthropology Department offers two majors:

1. B.A. in Anthropology
2. B.A. in International Affairs in Anthropology

A minor in Anthropology is also available (see "Minor in" in index).

REQUIREMENTS FOR ANTHROPOLOGY MAJORS

A minimum of 36 hours of anthropology or geography is required. In some cases, double majors may be able to apply six hours of collateral courses to the major. Majors must pass the following courses with at least a "C-" grade:

ANT 101 Introduction to Anthropology: Human Origins and Prehistory

ANT 102 Introduction to Anthropology: Diversity of Cultures

ANT 300 Basic Theory in Cultural Anthropology

ANT 317 Fundamentals of Archaeology

ANT 300, 317, the Capstone course, and 9 other credits must be taken at UMaine, (Orono).

Because ANT 300 and ANT 317 are prerequisite to some advanced level courses, students should take them as early in their program as possible. Note: ANT 300 and ANT 317 normally may not be taken by senior majors. ANT 499, which is offered only in the Spring semester, will normally be taken only by senior majors.

Advanced study in anthropology normally requires use of quantitative methods, foreign language competency, and some understanding of theory. Consequently, students planning to do graduate work in anthropology should take ANT 499 (Current Issues in Anthropology), a course in statistics such as ANT 462 (Numerical Methods in Anthropology), and achieve foreign language competency

at the intermediate level. Students interested in a career in archaeology are encouraged to take some graduate level courses (500 number) during their final year.

The anthropology major emphasizes a broadly based undergraduate curriculum. In consultation with his or her advisor, the student should select courses to sample effectively the sub-disciplines of anthropology, and avoid over-specialization at the BA level. A few interdisciplinary course concentrations or minors are very appropriate for the anthropology major. These are included under the College of Liberal Arts and Sciences.

REQUIREMENTS FOR THE INTERNATIONAL AFFAIRS MAJOR IN ANTHROPOLOGY

A minimum of 30 hours in anthropology is required for this major, together with a minimum of nine hours of appropriate courses in each of the following departments: History, Political Science, and Economics. In addition, the student must take six hours of a modern foreign language beyond the intermediate level.

Students majoring in International Affairs in Anthropology must pass the following courses with at least a "C-" grade: ANT 101, ANT 102, ANT 300, ANT 317. Students in this major normally will concentrate in social and cultural anthropology. See requirement for Anthropology Major (above) for courses which must be taken at UMaine. Since the number of required courses is relatively high, International Affairs in Anthropology majors should plan their programs early in their college careers. For additional information about the international affairs major, see International Affairs in the Index.

GRADUATE TRAINING IN ARCHAEOLOGY

The Department of Anthropology cooperates with the Institute for Quaternary Studies and the Department of History to train graduate students in prehistoric and historic archaeology (see History and Quaternary Studies in index). Application is made through these cooperating units. An Individualized PhD in Anthropology is possible under certain circumstances. (See also, Graduate School Catalog).

CAREER OPPORTUNITIES

Anthropology provides very broad training in the social sciences. Therefore, a background in Anthropology is useful in any career in which an understanding of people or the societies in which they live is important. Due to the broad nature of the field, students trained in anthropology have followed a wide range of careers. In recent years, our majors have pursued advanced training in anthropology and folklore. They also have gone on to advanced training in law, social work, business, theology, library science, museum work, nursing, computer programming, clinical psychology, education, and the U.S. Armed Forces.

International Affairs in Anthropology majors receive excellent preparation for careers in law, foreign service, international development, or business operating in the international arena.

Students with course work and practical experience in archaeology, as well as those with graduate degrees in archaeology, have found employment with public agencies and private organizations concerned with cultural resource management.

SPECIAL RESOURCES AND PROGRAMS

Archaeology faculty focus on historic and prehistoric North America and prehistoric South America. A number of faculty are jointly appointed with the Canadian-American Center and the Institute for Quaternary Studies. The cultural anthropologists have

extensive field experience in the Middle East, Oceania, Latin America, India, and Europe as well as in North America.

Periodically, the anthropology faculty offer field schools in historic and prehistoric archaeology, oral history and folklore, and geography. Students also are encouraged to participate in research programs in New England and the Maritime Provinces currently in progress. In recent years students have been hired to work on archaeology field and laboratory projects, in the Maine Folklife Center, the Hudson Museum of Anthropology, and as interviewers and research assistants for projects in medical anthropology and marine resource management. For further information see our homepage at the following URL: <http://www.ume.maine.edu/~anthrop>

APPLIED ECOLOGY AND ENVIRONMENTAL SCIENCES

Professor Fernandez (Chairperson)
Associate Professors Erich, Lambert, Liebman, Ohno, Porter, Wiedenhoeft, Zibilske
Senior Soil Scientist Rourke
Cooperating Professors R. Bushway, Plissey
Cooperating Associate Professors Griffin, Jemison, Stack
Research Assistant Professors Calhoun, Gallandt, Merrick, Rustad
Faculty Associates Honeycutt, Kalloch

The Department of Applied Ecology and Environmental Sciences actively teaches and advises undergraduate students in the interdisciplinary programs of Sustainable Agriculture and Natural Resources. The faculty in AES also train both M.S. and Ph.D. graduate students in the Plant, Soil and Environmental Sciences; Ecology and Environmental Sciences; Forest Soils; Plant Science; and Biological Science Programs.

BACHELOR OF SCIENCE IN SUSTAINABLE AGRICULTURE

The Bachelor of Science in Sustainable Agriculture is an interdisciplinary program offered cooperatively by the faculties of the Departments of Applied Ecology and Environmental Sciences; Biological Sciences; and Resource Economics and Policy. The program is designed for students interested in work as technical assistants and researchers within the public and private sectors; as policy analysts; or as farmers with sound training in natural resource management and economics. The B.S. degree in Sustainable Agriculture can also be used as preparation for postgraduate study in a variety of disciplines.

The Sustainable Agriculture program stresses how to increase farm profits by decreasing the costs of crop and livestock production; how to build soil tilth and fertility through rotations, multiple cropping and nutrient recycling; how to protect water quality and human health by decreasing the need to use synthetic agrichemicals; how to manage crop pests and livestock diseases with integrated, ecologically sound strategies; how to create a strong, diversified agriculture that can be sustained through years of fluctuating crop prices and weather. For more information call (207) 581-2951 or (207) 581-2938.

CURRICULUM IN SUSTAINABLE AGRICULTURE

The B.S. in Sustainable Agriculture requires satisfactory completion of at least 120 credit hours at a cumulative grade point average of not less than 2.0 in a course of study that conforms to the following curriculum.

Proficiency in Word Processing is required.

Core Courses

AES 101 Cropping Systems	4
AES 105 Principles of Sustainable Agriculture	3
AES 305 Problems in AES-SAG	1-6
AES 396 Field Experience in AES-SAG	3-16
AES 440 Soil Chemistry and Plant Nutrition	3
AES 449 Soil Organic Matter and Fertility	4
AES 479 Crop Ecology and Physiology	3
BIO 448 Insect Pest Ecology and Management	3
ENT 450 Design and Management of Agroecosystems	3
REP 381 Sustainable Development and Public Policy	3

Plant and Soil Sciences

AES 100 Plant Science	4
AES 140/141 Soil Science/Lab	4

Recommended:

AES 344 Soil and Water Conservation	3
AES 401 Advanced Crop Management—Forages	3
AES 401 Advanced Crop Management—Potatoes	3
AES 402 Advanced Crop Management—Vegetables	3
Required Hours	8

Crop Protection

AES 403 Weed Ecology and Management	3
AES 457 Plant Pathology	4
BIO 327 Introductory Applied Entomology	4
INT 482 Pesticides and the Environment	3
Required Hours	14

Animal Science

Choose 1:	
AVS 145 Animal Science	4
SMS 211 Aquaculture	3
Recommended:	
AVS 445 Sustainable Animal Production Systems	3
Required Hours	3-4
Required Hours	30

Basic Sciences and Mathematics

BIO 100 Basic Biology	4
MAT 122 Pre-Calculus	4
MAT 232 Principles of Statistical Inference	3

Choose either BMB or CHY:

BMB 207/208 Fundamentals of Chemistry	8
OR	
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
AND	
CHY 132 Applications of Chemistry	3
CHY 134 Applications of Chemistry Laboratory	1

Choose 1:

INT 319 General Ecology	3
INT 323 Introduction to Conservation Biology	3
WLE 200 Ecology	3

Recommended (choose 1):

MAT 126 Calculus I	4
MAT 151 Calculus for the Life Sciences	4
Required Hours	22

Communications

ENG 101 College Composition	3
Plus 6 credits from English and /or Speech Communication	
Recommended:	
ENG 229 Topics in Literature	3
Required Hours	9

<i>Economics</i>	
REP 254 Production Economics	3
Required Hours	<u>3</u>
<i>Human Values and Social Context</i>	
Required Hours	<u>12</u>
<i>Orientation</i>	
NFA 117 Issues and Opportunities-SAG	1

General Education Requirements

This information may be obtained in the Academic Information section at the front of this catalog.

Minimum Hours Required for Graduation: 120

Additional Courses That May Be of Interest

AES 442 Soil Taxonomy	3
AES 510 Plant Population Ecology	3
AVS 346 Dairy Cattle Technology	3
AVS 351 Animal Science Technology	2
AVS 368 Beef Cattle Apprenticeship	arr
BIO 204 Animal Biology	4
BIO 251 Plants and Society	3
BIO 435 Plant Anatomy	4
BIO 445 Plant Genetics	3
BIO 452/453 Plant Physiology/Lab	4

BIO 461 Insect Biology, Taxonomy, and Systematics
BIO 462 Principles of Genetics
BIO 464 Taxonomy of Vascular Plants
BIO 511 Insect Ecology
INT 475 Field Studies in Ecology
INT 525 Tropical Deforestation Seminar
INT 555 Pest-Plant Interactions
LHC 410 Plant Propagation
NRC 100 Introduction to Natural Resources
WLE 480 International Conservation

BACHELOR OF SCIENCE IN NATURAL RESOURCES

The Bachelor of Science in Natural Resources is an interdisciplinary program offered cooperatively by the faculties of different departments. The Department of Applied Ecology and Environmental Sciences plays a key role in this program and it is one of the two major B.S. degree options offered by our departments. Students interested in soil science and environmental science choose from among a number of concentrations available within the Natural Resources program. Students in the Environmental Science and Soil and Water Conservation concentrations receive training that both provide the skills needed to be successful in related professions, as well as to pursue graduate training. A wide range of environmental career options are open to students with these backgrounds that involve pollution control and regulation in agricultural, forest and urban environments, as well as issues such as water quality, wetland soil conservation, erosion, development, waste management, climate change, and hazardous waste. These programs include fundamental training in either soil science or entomology in certain concentrations. For more information call (207) 581-2997 or (207) 581-2938.

ART

Associate Professor Hicks (Chairperson)
Professors Groce, Lewis, Linehan
Associate Professors Decker, Ghiz, Smith
Assistant Professors Basinger, Grillo, Millett
Adjunct Assistant Professors Beckman, Sutcliffe

THE B.A. DEGREE

The Department of Art, as part of the College of Liberal Arts and Sciences, offers the opportunity to study studio art, art history and art education within a strong liberal arts curriculum. In addition, it offers a program of study for acquiring teacher certification in the visual arts. As a complement to the traditional humanities, the visual arts induce students to explore non-verbal modes of thinking and communication skills which are increasingly important in the modern world.

There is a departmental 21 credit hour residency requirement.

Studio Art

The Department of Art offers the B.A. degree in Art with a concentration in studio art. The concentration consists of course work in studio art (ART) as well as in art history (ARH). The emphasis of the art program is creative studio work in the areas of drawing, painting, printmaking and sculpture. Elective studio work is occasionally available in photography and graphic design. Art history is seen as necessary to intelligent studio development, as is the socializing of the student to the attitudes, philosophies, and language of the contemporary art world.

The studio degree can lead to (1) specialized work as an artist in one of the fine art areas, (2) graduate study in studio art, (3) art related jobs in commercial art, layout, or design. It should be noted, however, that in this specific area we do not offer a specialized program of study.

History of Art

The Department of Art also offers the B.A. degree in Art with a concentration in History of Art.

History of Art students begin the program with introductory courses that survey historically significant objects and monuments, including paintings, graphics, drawings, sculptures, pottery, photographs, and architecture, from ancient times through the present. These courses consider form, content, role and meaning of expressive works in light of their social, political, philosophical, and cultural contexts. The program stresses from its foundation courses through its highest level seminars, an awareness of how diverse methodological approaches frame our knowledge of each particular subject.

Advanced courses reflecting the world outlook of the cultures studied, identify four traditions in the history of western art. Geography defines the older two: the Classical Tradition of the Mediterranean World and the Northern European Tradition, which parallel one another in time, running up to the end of the sixteenth century. Time separates the third and fourth traditions; the Enlightenment era studies the seventeenth and eighteenth centuries, while the Modern era explores the nineteenth and twentieth centuries. Two required upper level seminars let students study the principal underpinnings of the field: its essential theories and its critical methods.

In addition to courses in History of Art, the program requires students to take two Studio Art courses to provide insight into the working methods of artists, the creative processes which foster intuitive thinking, and non-verbal conceptualization and articulation. Also,

students must take two modern language courses, to broaden their research capabilities in the field.

With its focus upon critical thinking in verbal and non-verbal forms of cognition, the History of Art course of study prepares students for many options including continued study at the graduate level. It readies students for careers in museums, art galleries, arts administration, antiquities, communications, arts libraries, and arts criticism.

Art Education

In addition to concentrations in studio art and history of art the Department of Art offers the Bachelor of Arts degree in Art with a concentration in art education. The concentration in art education provides a liberal arts program of study while preparing students as teachers of the visual arts. Completion of the program leads to certification as an art teaching specialist in the State of Maine, grades K-12, as well as preparing students for employment in a variety of community based sites where formalized art instruction occurs. Many students go on to further study at the Graduate Level.

The art education concentration includes coursework in the social and behavioral sciences, arts and humanities, natural sciences and mathematics as well as in focus areas of the visual arts and education. Study in the visual arts includes 30 hours of art studio (27 in required courses, three in studio electives); 18 hours of art history (12 in required courses, six in art history electives); and 15 hours in art education (required). In addition, students are required to complete 24 hours of professional education coursework and practicum experience. In order to complete the 125 credit hours required for graduation, art education students must take 6 hours of coursework as an overload (over 15 hours per semester) or during summer sessions.

Options in Art Education

Art education today is a field of research, study, and practice which has expanded beyond public school art teaching. Undergraduate study in art education not only prepares a student for teaching certification, but also for graduate work in specialized areas of art education and related fields of study. Some art education majors choose careers in museum education, art therapy, community arts education, arts administration, or other fields which involve working closely with people and art. The Department of Art offers several options within the basic course of study in art education. Among these are an enriched studio option, and the Developmental Disabilities Interdisciplinary Concentration in affiliation with the Behavioral and Developmental Pediatrics Center at Eastern Maine Medical Center and its cooperating agencies. (See the University Affiliated Program, UAP in Index.) This concentration offers art and art education students an opportunity to develop understanding of the complex factors affecting the developmentally disabled. Students choosing this option may be preparing to work with mainstreamed students in public schools or to go on for graduate study in art therapy.

The final option is for students in the studio art and art history concentration who wish to prepare for certification as an art teaching specialist in the State of Maine. Such students may fulfill the

requirements for teacher certification by completing required studio, art history, art education, and professional education courses, including the student teaching practicum. These courses may be counted as Bachelor of Arts distribution electives.

Most studio courses require that the student purchase a basic supply of necessary tools and equipment.

The Department of Art utilizes a collection of 40,000 slides, 10,000 reproductions, and 4,200 original works of art in its teaching programs. There is also a year-round program of exhibitions in the many galleries on campus sponsored by the University of Maine Museum of Art.



SUGGESTED CURRICULUM B.A. IN ART: STUDIO ART

First Year

First Semester

ART 100 Drawing I	3
ART 110 2-D Design	3
OR	
ART 120 3-D Design	(3)
ARH 155 Art History I	3
General Education or B.A. Degree Requirements	3
Elective	3
	<hr/>
	15

Second Semester

ART 200 Drawing II	3
ART 120 3-D Design	3
OR	
ART 110 2-D Design	(3)
ARH 156 Art History II	3
General Education or B.A. Degree Requirements	3
Elective	3
	<hr/>
	15

Sophomore Year

First Semester

Choose 2 studios:	
ART 200 level studio	6
ARH 2-3xx ARH Requirements	3
General Education or B.A. Degree Requirements	3-4
Elective	3
	<hr/>
	15-16

Second Semester

Choose 2 studios:	
ART 200-300 level studio	6
ARH 2-3xx ARH Requirements	3
General Education or B.A. Degree Requirements	3-4
Elective	3
	<hr/>
	15-16

Junior Year

First Semester

Choose 2 studios:	
ART 200-300 level studio	3
ART 300 level studio requirement	3
General Education or B.A. Degree Requirements	3-4
Electives	6
	<hr/>
	15-16

Second Semester

Choose 2 studios:

ART 200-300 level studio	
ART 300 level studio requirements	
General Education or B.A. Degree Requirements	3
Electives	
	<hr/>
	15-16

Senior Year

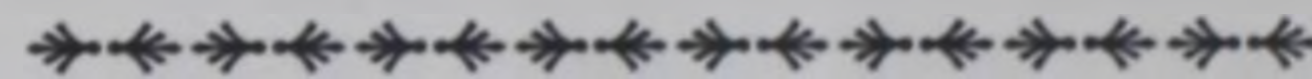
First Semester

ART Studio requirement	
General Education or B.A. Degree Requirements	3
ART Advanced Studio Capstone Experience	
OR	
ART 400 Senior Seminar	(1)
Electives	
	<hr/>
	15-16

Second Semester

ART Studio Electives	
ARH 3xx (ARH Elective)	
Electives	1

MINIMUM TOTAL CREDITS REQUIRED: 120



SUGGESTED CURRICULUM B.A. in ART: HISTORY OF ART

First Year

First Semester

ARH 155 Art History I	
Foreign Language	
General Education or B.A. Degree Requirements	
Elective	1

Second Semester

ARH 156 Art History II	
Foreign Language	
General Education or B.A. Degree Requirements	
Elective	1

Sophomore Year

First Semester

ARH 200's Classical, Northern, Enlightenment, or Modern	
ART 100's Studio Art requirement	
General Education or B.A. Degree Requirements	6
Elective	
	<hr/>
	15-16

Second Semester

ARH 200's Classical, Northern, Enlightenment, or Modern	
ART 100's Studio Art requirement	
General Education or B.A. Degree Requirements	
Elective	1

Junior Year

First Semester

ARH 200's Classical/Northern or Enlightenment/Modern	3
ARH 300's Classical/Northern or Enlightenment/Modern	3
Electives	9
	<hr/> 15

Second Semester

ARH 300's Classical/Northern or Enlightenment/Modern	3
ARH 300's Any 300 level ARH Seminar	3
Electives	9
	<hr/> 15

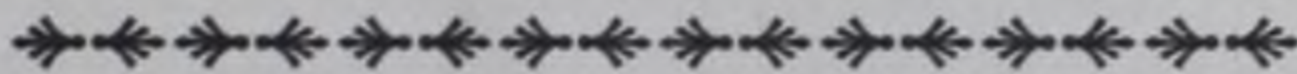
Senior Year

First Semester

ARH 355 Critical Methods	3
ARH 300's Any 300 level ARH Seminar	3
Electives	9
	<hr/> 15

Second Semester

ARH 351 Art Theory and Criticism	3
ARH 400's Any 400 level ARH Seminar	3
Electives	9
	<hr/> 15



SUGGESTED CURRICULUM B.A. in ART: ART EDUCATION

First Year

First Semester

ART 100 Drawing I	3
ART 110 2-D Design	3
ARH 155 Art History I	3
OR	
ARH 156 Art History II	(3)
General Education or B.A. Degree Requirements	3
PSY 100 General Psychology	3
OR	
ENG 101 College Composition	(3)
	<hr/> 15

Second Semester

ART 200 Drawing II	3
ART 120 3-D Design	3
ARH 155 Art History I	3
OR	
ARH 156 Art History II	(3)
General Education or B.A. Degree Requirements	3
PSY 100 General Psychology	3
OR	
ENG 101 College Composition	3
	<hr/> 15

Sophomore Year

First Semester

ART 220 Sculpture I	3
ART 230 Painting I	3
ARH 262 Early Modern Art: From Fauvism to Surrealism	3

EDB 202 The American School	3
General Education or B.A. Degree Requirements	3
	<hr/> 15

Second Semester

ART Intermediate or Upper Level Elective	3
EDB 221 Educational Psychology	3
General Education or B.A. Degree Requirements	7
Humanities Elective	3
	<hr/> 16

Junior Year

First Semester

ART 300 Drawing III	3
OR	
ART 302 Figure Drawing	(3)
AED 371 Methods and Materials in Art Education	3
AED 372 Foundations of Art Education	3
AED 373 Introduction to Curriculum	3
ARH Upper Level Elective	3
	<hr/> 15

Second Semester

Humanities Elective	3
ART 240 Printmaking I	3
AED 473 Advanced Curriculum in Art Education	3
AED 474 Topics in Art Education	3
ARH 351 Art Theory and Criticism	3
	<hr/> 15

Senior Year

First Semester

ARH Upper Level Elective	3
ART Upper Level Elective	3
SED 402 Mainstreaming Exceptional Students	3
General Education or B.A. Degree Requirements	7
	<hr/> 16

Second Semester

STT 494 (Full Day) Student Teaching K-12	12
	<hr/> 12

Summer Session or Overload

Humanities Electives	6
	<hr/> 12

BIOCHEMISTRY, MICROBIOLOGY AND MOLECULAR BIOLOGY

Professor Nicholson (Chairperson)

Professor King

Associate Professors Croall, DeSiervo, Hutchison, Moody, Singer, VanBeneden, Vayda

Assistant Professors Distel, Gundersen, Speer

Instructor Hanson

Cooperating Faculty

Associate Professors Hunter, Jellison, Travantzis (Biological Sciences), Sidell (School of Marine Sciences), Zilbilske (Applied Ecology and Environmental Sciences)

Affiliated Cooperating Faculty

The Jackson Laboratory, Bar Harbor, ME: J. Barker, E. Leiter, L. Schultz

Colby College: F. Fekete

The Department offers separate but related undergraduate programs in Biochemistry, Microbiology, and Molecular and Cellular Biology. All three undergraduate programs are designed to provide the student with a broad background in the biological and physical sciences and an opportunity for in depth concentration in one or more of the most active disciplines in the biological sciences. Both the Bachelor of Science (B.S.) and Bachelor of Arts (B.A.) degrees are offered in Biochemistry and Microbiology. The B.S. degree is offered in Molecular and Cellular Biology.

The Department offers M.S. and M.P.S. graduate degrees in Biochemistry and in Microbiology and the Ph.D. degree in Biochemistry and Molecular Biology and in Microbiology. The descriptions and general requirements of these graduate programs are listed in the Graduate School Catalog.

BIOCHEMISTRY

Biochemistry is concerned with the study of all living systems at the cellular and molecular levels and is, therefore, fundamental to all life sciences. The field is broad in its disciplinary subjects and applications. It emphasizes the use of chemistry and other physical sciences to understand basic life processes and the products of such processes. In addition to traditional study of the structure and function of biological molecules and understanding of metabolism, the field has come to encompass aspects of molecular biology, molecular genetics, and many areas of biotechnology. It forms a major component of modern medical research and practice, bioengineering and contemporary agriculture and environmental research.

MICROBIOLOGY

Microbiology is the study of microscopic forms of life such as bacteria and viruses and the immune response to these microorganisms. It is a broad, multidisciplinary field using techniques of genetics, chemistry, biochemistry, physiology, ecology, and pathology to study the biology of microorganisms from gene expression at the molecular level to the composition of populations of microorganisms. Exciting discoveries involving microorganisms have important and far reaching implications for biotechnology, molecular biology, medicine, public health and the environment. AIDS and other important diseases present new and exciting challenges for microbiologists in the public health field. Advances in recombinant DNA technology, immunology, and the ability to manipulate the biology of microbial cells have revolutionized science and thrust microbiology into the center of the rapidly expanding arena of biotechnology.

MOLECULAR BIOLOGY

Molecular biology has evolved in recent years as a response to the increased ability to study organisms at the molecular level. This discipline involves the systematic study of the molecular and structural basis for the organization, transmission and expression of genetic information, in addition to the general study of macromolecular systems involved in the structure and function of cellular components. Recent years have seen explosive advances in the study of DNA and molecular genetics including gene cloning, sequencing, and mapping. Developments in recombinant DNA technology have opened up entirely new areas of study and provided powerful techniques that are revolutionizing the pharmaceutical, health and agricultural industries and have spawned new industries in biotechnology.

HANDS-ON EXPERIENCE

An important aspect of all three undergraduate programs is the opportunity to gain hands-on experience in the laboratory. Laboratory courses are offered in fundamental aspects of biochemistry and microbiology as well as specialized topics such as recombinant DNA techniques, virology, cell culture, immunology, pathogenic microbiology and microbial genetics and diversity. Laboratory courses in these topics are not generally available at smaller institutions without graduate and research programs or at many larger research universities where student numbers are too large to accommodate numerous laboratory courses in such specialized areas.

At the University of Maine, however, we are large enough to have faculty with expertise in most subdisciplines but small enough in terms of students to be able to provide a wide variety of laboratory courses. We also take pride in the fact that all of our laboratory courses above the introductory level are taught by professors, not by graduate students or part-time instructors. We believe strongly that such close interactions between students and faculty in small groups typical of most laboratory courses is very important and mutually beneficial to the student and the faculty.

In addition, because the Department has active graduate (M.S. and Ph.D.) and research programs in many different areas of biochemistry, microbiology, and molecular biology, we can provide a variety of opportunities for undergraduate students to engage in independent study and research with individual faculty. In fact, we believe that this is one of the most important aspects of our undergraduate programs. In your senior year research course, you'll be part of a research team of faculty, postdoctoral research associates, technicians, and graduate and undergraduate students who are

actively engaged in ongoing research projects that are both publicly and privately funded. Cooperative Education and Field Experience courses also provide opportunities to earn academic credits while working off-campus in industry, hospitals, and research institutes.

FACILITIES

The facilities for teaching and research are located predominantly in a modern addition to Hitchner Hall. The building contains one of the newest and most modern facilities in New England for teaching and research in biochemistry, microbiology and molecular biology, including specialized equipment and laboratories for teaching molecular biology, virology, pathogenic microbiology, and animal cell culture. Also the University's Automated DNA Sequencing Laboratory is located in departmental facilities in Hitchner Hall. As described above, close proximity to research laboratories enables students to participate in independent study and undergraduate research projects using state-of-the-art equipment and methods.

CAREER OPPORTUNITIES

Rewarding career opportunities for biochemists, microbiologists, and molecular biologists are exceptionally numerous and varied. A career in one of these fields is not just a job, but an opportunity to explore new phenomena, participate at the frontiers of the most actively expanding areas of science today, and make significant contributions to human beings, our society and our world. These disciplines are at the core of the rapidly expanding fields of biotechnology, molecular biology and allied health professions.

Graduates of these programs work in: public health laboratories medical, dental, veterinary and university research laboratories; pharmaceutical, food, and chemical industries; environmental research and monitoring laboratories; colleges and universities; and a variety of existing as well as emerging genetic engineering and biotechnology industries.

HEALTH PROFESSIONS

Majoring in biochemistry, microbiology or molecular biology provides the ideal preparation for further study in medical, dental, veterinary and other health-related professional schools. Students interested in these careers should register in their first year with the Health Professions Committee which provides information and assistance in selecting proper supporting courses and the application process.

DEGREE REQUIREMENTS

Requirements for the B.S. Degrees in Biochemistry, Microbiology, and Molecular and Cellular Biology are satisfactory completion of at least 120 degree hours with a cumulative grade point average of not less than 2.0 overall and in courses in the major, in a course of study that conforms to the following curricula. A B.A. degree can be earned in biochemistry or in Microbiology by selection of appropriate courses in the arts, humanities and social science.

BIOCHEMISTRY DEGREE PROGRAM

First Year Seminar

CS 100 Majoring in the Sciences 1

English

ENG 101 College Composition 3

Humanities and Social Sciences:

Elective Courses (foreign languages encouraged) 18

MICROBIOLOGY DEGREE PROGRAM

First Year Seminar

SCS 100 Majoring in the Sciences 1

English

ENG 101 College Composition 3

Humanities and Social Sciences:

Elective Courses (foreign languages encouraged) 18

Biology

BIO 100 Basic Biology 4
 BIO 204 Animal Biology 4
 OR
 BIO 201 Plant Biology 4
 BIO 280 Cellular and Molecular Biology 3

Mathematics:

MAT 126 Calculus I 4
 MAT 127 Calculus II 4

Physics

PHY 111 General Physics
 PHY 112 General Physics 4

Chemistry:

CHY 121 Introduction to Chemistry 3
 CHY 123 Introduction to Chemistry Laboratory 1
 CHY 122 Molecular Basis of Chemical Change 3
 CHY 124 Molecular Basis of Chemical Change Laboratory 1
 CHY 251 Organic Chemistry I 3
 CHY 253 Organic Chemistry Laboratory 2
 CHY 252 Organic Chemistry II 3
 CHY 254 Organic Chemistry Laboratory 2

Microbiology

BMB 300 General Microbiology 3
 BMB 305 Microbiology Laboratory 2

Molecular Biology

BMB 400 Introductory Molecular Biology 3

Biochemistry

BMB 322 Biochemistry 3
 BMB 322L Biochemistry Laboratory 1
 BMB 450 Principles of Biochemistry 3
 BMB 460 Advanced Biochemistry 3
 BMB 464 Analytical and Preparative Biochemical Laboratory Methods 4
 BMB 470 Biochemistry Seminar 2
 BMB 491 Biochemistry, Microbiology and Molecular Biology Research 6

Science Electives:

Selected from courses offered by the College of Liberal Arts and Sciences or, by approval of advisor, from other colleges 16

Free Electives:

7

IO 453 Plant Physiology Laboratory	1	<i>Other Areas</i>	
MB 430 Bacterial Physiology	3	BIO 436 Biological Ultrastructure	3
MB 431 Microbial Physiology Laboratory	1	BIO 465 Evolution	3
<i>Techniques</i>		BIO 557 Advanced Topics in Plant Virology	1-3
IO 441 Electron Microscope - Theory and Use	2	BMB 440 Introductory Immunology	4
MB 481 Radiation Biology	2	BMB 455 Virology	3
MB 510 Laboratory in Molecular Biology	4	BMB 540 Advanced Immunology	3
OS 220 Introduction to Computer Science I	3	BMB 551 Advanced Topics in Animal Virology	3
OS 460 Interactive Computer Graphics	3	BMB 560 Molecular Genetics	3
<i>Biochemistry</i>			
MB 500 Nucleic Acids	3		
MB 525 Proteins and Enzymes	3		
MB 530 Regulation of Growth in Eukaryotes	3		
MB 542 Biochemical Mechanisms	3		
<i>Physical Chemistry</i>			
PHY 371 Physical Chemistry I	4		
PHY 447 Molecular Biophysics	3		

BIOLOGICAL SCIENCES

Professor Shick (Chairperson)

Professor Campbell (Associate Chairperson)

Professors Alford, Campbell, Cronan, Davis, Dowse, Haines, Moring, Jacobson, Ringo, Schwintzer, Tavantzis, Tjepkema, M. Tyler, S. Tyler, Vadas

Associate Professors Drummond, Gelinas, Glanz, Groden, Hunter, Jellison, Kass, Neubauer

Assistant Professors Chivers, Huryn, Woods

Research Professor Revelante

Research Assistant Professors Almquist-Jacobson, Kravit, Longcore, Murray

Instructor Tracewski

Associate Scientists Anderson, Lakshman

Assistant Scientists Stubbs, Wright

The Department of Biological Sciences was formed in July, 1997, through consolidation of the faculties of Entomology, Plant Biology and Pathology, and Zoology. It constitutes the largest and most diverse assemblage of biological expertise in the State of Maine. Its breadth and depth enable it to offer students a wide variety of program choices at all levels from the baccalaureate to the doctorate. Work leading to the Bachelor of Arts (B.A.) degree is offered in Biology, Botany, Clinical Laboratory Sciences, and Zoology; to the Bachelor of Science (B.S.) degree in Biology, Botany, and Zoology; to the Master of Science (M.S.) in Botany, Entomology, and Zoology; and to the Doctor of Philosophy (Ph.D.) in Biological Sciences and in Zoology. Currently the department is home to approximately 400 students, including 60 who are pursuing advanced degrees, many of whom come to us from across the United States and throughout the world. Graduates pursue various careers, depending on their interest, level of educational attainment, and subsequent professional education. Among the more typical career areas are human and veterinary medicine, scientific research and development, education at the high school and college levels, hospital laboratory analysis, environmental monitoring and regulation at state and federal levels, and private design and consulting.

FACILITIES AND AFFILIATIONS

The Department of Biological Sciences has teaching and research facilities in five different buildings on the UMaine campus, but the majority of its faculty are housed in Murray Hall (location of the principal administrative offices) and Deering Hall; other facilities are located in Hitchner Hall, the Environmental Sciences Laboratory and Hannibal Hamlin Hall. Altogether, the department occupies more than 100,000 square feet of space devoted to teaching and research. The department also has several special facilities and collections that enrich the educational experience of its students.

SPECIAL FACILITIES AND COLLECTIONS

The electron microscopy laboratory is a teaching and research facility in Murray Hall that serves the entire campus and beyond. It houses a scanning microscope, two transmission microscopes, an ultrastructure preparation laboratory, and EDS microanalytical equipment.

The Ira C. Darling Marine Center, located 100 miles south of the Orono campus in Walpole, Maine, is operated by UMaine as a teaching and research facility for the entire university community. It is equipped with large, flowing-seawater tanks and a fleet of small boats and a complete SCUBA facility, as well as classrooms and laboratories. Living accommodations are available. Many faculty and students in Biological Sciences take advantage of this unique facility for part of their teaching and research.

The DNA sequencing facility in Hitchner Hall serves the needs of the campus community, including students and faculty in Biological Sciences.

The University of Maine Herbarium, located in Hannibal Hamlin Hall, is a fully cataloged collection of preserved specimens of vascular plants found in Maine, plus many species not native to Maine. In addition to about 100,000 specimens of vascular plants, the collection also includes algae, lichens, mosses and fungi.

The University of Maine insect collection contains a wide representation of taxa occurring in Maine and some specimens from outside the State, including tropical forms. The collection began more than 100 years ago and contains many representatives of species that are now extinct in Maine and others listed as federally endangered species. It contains several thousand microscope slides of aphids from Dr. Edith Patch, and the donated Lepidoptera collection of Bruno M. Spies, Prof. Manton Copeland and Charles Burton Hamilton. Mayflies, stoneflies, bees and grasshoppers are especially well represented.

The University of Maine vertebrate collections are housed in Murray Hall and contain over 6000 fish specimens, more than 3500 bird specimens, and 1200 mammal specimens used in teaching and research. The holdings emphasize species from Maine but include many others from throughout the world. Of particular note are specimens of birds and mammals formerly held by the Portland Society of Natural History, the Paul F. Eckstrom Bird Collection, and an extensive reference collection of marine and freshwater fishes from Maine.

The Fay Hyland Arboretum, located on 10 acres bordering the Stillwater River, which serves as one boundary of the UMaine campus, is a living collection of woody plants native to Maine. The arboretum also includes many interesting exotic species and serves as a resource for teaching, research, and natural enjoyment.

Together, the plant and animal collections of the Department of Biological Sciences form a unique resource for students of systematics and natural history. They are invaluable to those working to document Maine's biodiversity and to preserve our biotic environment.

AFFILIATIONS

The department maintains a cooperative graduate program (Mammalian Genetics) with The Jackson Laboratory, Bar Harbor.

The Maine Cooperative Fish and Wildlife Research Unit provides opportunities for training and research in fishery science. It is operated under a cooperative agreement among the University of Maine, the Maine Department of Inland Fisheries and Wildlife, and the Biological Resource Division of the U.S. Geological Survey. Fishery unit staff are members of the department faculty.

The Department of Biological Sciences houses the National Fisheries Contaminant Research Center (a field station of the U.S.G.S.), which conducts research on aquatic pollutants.

The department maintains close ties, including both joint and cooperating faculty appointments, with the University of Maine School of Marine Sciences and the Department of Biochemistry, Microbiology and Molecular Biology and Forest Ecosystems Science.

cooperative research and educational programs are also underway with members of the staff of the Huntsman Marine Sciences Centre, St. Andrews, New Brunswick, Canada, and the Mt. Desert Island Biological Laboratory, Salsbury Cove, Maine.

BACCALAUREATE PROGRAMS

The Department of Biological Sciences offers students an exceptional range of major degree programs, including Biology, Botany, Zoology, and Clinical Laboratory Sciences. Curricula are tailored within broad guidelines to meet the career goals of the individual student. Each student is assigned a member of the faculty as an academic advisor, who works closely with advisees to develop a curriculum in the biological sciences that best meets individual goals.

AREAS OF SPECIALIZATION AND OPPORTUNITIES FOR STUDENTS

Anatomy and Physiology

The department offers an extensive selection of courses in organismal biology of many animal and plant taxa, including offerings in vertebrate anatomy and biology, functional morphology, vertebrate biology, insect biology, plant anatomy, animal physiology and plant physiology, as well as in mammalogy and ornithology. Specialized courses are also available in comparative animal physiology, physiological ecology and cell physiology.

Biological Research

Students in their third and fourth years of study, and who intend to pursue post baccalaureate studies leading to advanced degrees, are strongly encouraged to augment their formal courses with independent research under the guidance of a faculty member. The department has extensive facilities and equipment for research that are available to qualified undergraduates. There is no better way to learn what modern biology is about, or to smooth the transition to graduate study. The opportunity to participate in real research is one of the major advantages offered to students attending a research university. Students are encouraged to consult early with their academic advisor to identify areas of interest and possible faculty research mentors.

Cell Biology

The department offers a variety of courses, including histology, biological ultrastructure, microtechnique and electron microscopy, as well as process-oriented courses in cell biology, development and morphogenesis. Such a curricular emphasis prepares the student for either cellular research at the graduate level or for technical positions in biomedical research.

Ecology

Faculty of the Department of Biological Sciences are actively engaged in a wide range of basic and applied field and laboratory studies in ecology and environmental science. Among the research specialties represented are aquatic ecology; biogeochemistry of terrestrial, wetland, and aquatic ecosystems; effects of pollutants on plants, soils and aquatic organisms; resource management and habitat preservation; behavioral ecology; peatland ecology; physiological and chemical ecology of animals and plants; and paleoecology (the reconstruction of pre-historic ecological conditions).

A diversity of courses is available, ranging from basic ecology to specialized advanced courses in physiological ecology, population ecology, community ecology, field ecology, wetlands and aquatic ecology, and paleoecology.

Entomology

The Department of Biological Sciences is strong in insect biology and ecology. Courses at the undergraduate level are offered in general entomology, insect biology, morphology, systematics and insect pest management. Advanced courses cover such topics as insect ecology, aquatic entomology, and physiology.

Evolution and Systematics

Faculty are conducting basic research in systematics and evolution, employing techniques ranging from field studies to analysis of DNA sequences. A wide variety of courses is offered for undergraduates, including plant taxonomy, insect taxonomy, algal biology, fungal biology, vertebrate biology, invertebrate biology, evolution and behavior.

Fish Biology

Faculty of the department have long been recognized internationally for their research on the biology of fishes. Emphases include fisheries biology and ecology, fish physiology and behavior, and systematics of various groups of fishes. Students interested in fish biology may supplement their programs with courses in each of these areas. Concentration in this area provides students a strong background for research and management jobs in the private, state, and federal sectors, and for continued research at the graduate level.

Freshwater Biology

The department has special depth in the biology and ecology of fresh water. Topics of emphasis range from cellular, organismal, and population studies of fishes, invertebrates and plants to ecosystem analysis, biogeochemistry, and effects of acid precipitation. Fishery biology, aquatic entomology, river, streams and peatland ecology and chemical ecology and toxicology are particularly strong.

Genetics and Development

The department offers undergraduate courses in general genetics, and advanced courses in such areas as population biology, mammalian genetics and plant genetics. Undergraduate courses are also offered in developmental biology and morphogenesis.

Health Professions

A Biology or Zoology major may prepare for further study in medicine, dentistry, osteopathy, optometry, podiatry, veterinary medicine, and other health-related fields. Courses useful in preparing the professional include comparative anatomy, developmental biology, morphogenesis and differentiation, animal physiology, biological ultrastructure, histology, genetics, neurobiology, cell biology, and various advanced courses in genetics, physiology, and electron microscopy. Students work closely with a special health-professions advisor who assists them in meeting admissions criteria of post-baccalaureate schools and colleges.

Accelerated Pre-Medical Program

The University of Maine and the University of New England College of Osteopathic Medicine cooperate to offer a 3 + 4 program which allows qualifying students majoring in biology at UMaine to be admitted to the College of Osteopathic Medicine at UNE after three years at UMaine rather than the customary four years of undergraduate preparation. Upon successful completion of the first year of medical school at UNE, students participating in this program will receive the Bachelor's degree from UMaine.

This agreement is specifically between UMaine and the University of New England College of Osteopathic Medicine and does not apply to other undergraduate institutions or medical

schools. Consult the Chairperson of the Department of Biological Sciences for qualifications and the undergraduate curriculum.

Marine Biology

Marine biology is one of the strongest areas at the University of Maine, drawing on the expertise of faculty in the School of Marine Sciences and several other units. Several Biological Sciences faculty hold joint or cooperating appointments in, and the department works closely with, the School of Marine Sciences to offer a concentration in marine biology within the B.S. in Marine Sciences. Please consult the School of Marine Sciences section of this catalog for details.

Plant Pathology

Students interested in plant/pathogen interaction may develop their own concentration in plant pathology, drawing on courses offered by this and other departments, and supported by individual research under the guidance of one of the plant pathologists on the department faculty. Areas of specialization include the molecular biology of plant/pathogen interactions and fungal pathogens of plants.

MAJOR PROGRAMS: BIOLOGY, BOTANY, ZOOLOGY

All programs in the Department of Biological Sciences (excepting the B.A. in Clinical Laboratory Sciences, described in detail below) follow a common curriculum for the first year, unless individual needs are better met by a different sequence.

The first year typically consists of the following courses: basic biology, general chemistry, pre-calculus or calculus, English or a general education course, and first-year seminar (NFA 117) during the fall semester. The second semester typically includes a second introductory course in biology (botany, zoology or molecular biology), the second semester of general chemistry, calculus or a general education course, and English or a general education course.

Following the first year, the programs in biology, botany, and zoology diverge. Academic year 1997-98 is one of transition, and future consolidation of these degree programs is being considered. Entering students are encouraged to enroll in the Biology program, and may specialize in animal or plant biology as desired after consulting with their academic advisors.

REQUIREMENTS FOR THE BIOLOGY MAJOR

Students may earn the B.A. in Biology by completing the curriculum outlined as follows, with the additional requirements that:

1. in conjunction with meeting the General Education Requirements, students must take a total of 27 credits in Human Values and Social Context, of which at least 12 credits must be at the 200 level or above;
2. students must complete a minimum of 72 credits outside the major (credit hours in courses outside of the Department of Biological Sciences that are required for the Biology major still count toward the 72 hours)
3. B.A. candidates in Biology must demonstrate proficiency in a foreign language at the intermediate level.

Students may earn the B.S. in Biology by completing the following curriculum and satisfying the General Education Requirements.

All students in Biology are required to maintain a G.P.A. of 2.0 or higher in the major and in other science and mathematics courses taken to satisfy program requirements. Transfer students must complete a minimum of 15 credits in BIO or BMB courses in residence, excluding BIO 100, 201, 202 and 204.

BIOLOGICAL SCIENCES

Specific Requirements

BIO 100 Basic Biology
 BIO 202 Plant Biology
 OR
 BIO 203 The Plant Kingdom
 BIO 204 Animal Biology
 BIO 445 Plant Genetics
 OR
 BIO 462 Principles of Genetics
 BIO 465 Evolution
 BMB 280 Introduction to Cellular and Molecular Biology
 BMB 300 General Microbiology
 BMB 305 General Microbiology Laboratory
 INT 319 General Ecology
 OR
 BIO 300 Field Marine Biology

Group Requirements

Taxonomy

Students choose one from among the following:
 BIO 326 Introductory Entomology
 BIO 329/331 Vertebrate Biology/Laboratory
 BIO 353 Invertebrate Zoology
 BIO 464 Taxonomy of Vascular Plants
 BIO 473 Biology of Algae
 BMB 410 Diversity of Microorganisms

Physiology

Students choose one from among the following:
 BIO 377/378 Animal Physiology/Laboratory
 BIO 452/453 Plant Physiology/Laboratory
 BIO 480 Cell Biology
 BIO 485 Comparative Animal Physiology
 BMB 430/431 Bacterial Physiology/Laboratory

Anatomy

Students choose one from among the following:
 BIO 333 Comparative Anatomy
 BIO 336 Developmental Biology
 BIO 435 Plant Anatomy

Total Hours

4

Other Sciences

Mathematics

MAT 126 Calculus I
 OR
 MAT 151 Calculus for the Life Sciences
 (Many students will need MAT 122, Pre-Calculus, as preparation)
 Second math or computer science

Total Hours

General Chemistry

CHY 121 Introduction to Chemistry
 CHY 123 Introduction to Chemistry Lab
 AND
 CHY 122 Molecular Basis of Chemical Change
 CHY 124 Molecular Basis of Chemical Change Lab

Total Hours

Organic Chemistry and Biochemistry

CHY 251 Organic Chemistry I
 CHY 253 Organic Chemistry I Lab
 AND

BY 252 Organic Chemistry II	3
BY 254 Organic Chemistry II Lab	2
US	
4B 322 Biochemistry	3
4B 322L Biochemistry Laboratory	1
(required sequence for pre-medical students)	
4B 221 Organic Chemistry	3
4B 221L Organic Chemistry Laboratory	1
ND	
4B 322 Biochemistry	3
4B 322L Biochemistry Laboratory	1
Total Hours	8-14

ysics

IY 111 General Physics I	4
IY 112 General Physics II	4
Total Hours	8

Other Areas

Human Values and Social Context

4A in Biology requirement	27
4B in Biology requirement	18
Total Hours	18-27

ysics

Total Hours	3
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Demonstrated Writing Competency

4G 101 or equivalent by placement exam	(3)
Writing-intensive course	3-4
Writing-intensive course in major:	
4D 300 Field Marine Biology	4
4D 400 Biology Writing Intensive	1
Total Hours	4-11

Workstone experience

Total Hours	3
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Electives

Students may use their free electives to take additional courses in biology, or to complete a minor or special option.	
Total Hours	8-17

TOTAL CREDITS REQUIRED: 120

CLINICAL LABORATORY SCIENCES

Students in Clinical Laboratory Sciences may concentrate in Medical Technology or Cytotechnology.

Medical technology prepares students for positions in the laboratory/diagnostic sector of the health professions industry. Students interested in the Medical Technology program must enroll as pre-medical technology students and apply for formal admission to the program after completing three semesters of study. Admission is not automatic and depends on academic performance and aptitude for the field. Medical technology students are on campus for three academic years and then spend the senior year in a twelve-month clinical center practicum. The University of Maine is affiliated with the Eastern Maine Medical Center (EMMC) in Bangor. Juniors in the Medical Technology program apply directly to the EMMC program for the practicum. A student must have a G.P.A. of 2.5 overall and 2.5 in the sciences to be considered for admission to the EMMC program.

EMMC reserves the right to refuse admission to students who in their judgement would not be satisfactory. After completing the practicum, students are eligible to take the certifying examination administered by the American Society of Clinical Pathology.

Cytotechnology is a specialty in clinical laboratory medicine involving the microscopic evaluation of human cells for the detection of changes indicative of various diseases, pre-cancerous conditions and cancer. Cytotechnologists are employed in clinical pathology laboratories and reference laboratories. The University of Maine is affiliated with the Fletcher Allen Health Care School of Cytotechnology at the Medical Center Hospital of Vermont, in Burlington. Students interested in the Cytotechnology program must enroll as pre-cytotechnology students and apply for formal admission to the program after completing three semesters of study. Admission is not automatic and depends upon academic performance and aptitude for the field. Cytotechnology students are on campus for three academic years and then spend the senior year in a twelve-month medical center practicum. A student must have a G.P.A. of 2.7 overall and a GPA of 2.7 in the sciences to be considered by the Fletcher Allen Health Care School of Cytotechnology. After completing the practicum, students take the certifying examination administered by the American Society of Clinical Pathology.

For further information contact Dr. Susan Hunter, Coordinator, 221 Murray Hall. Phone (207) 581-2581.

CURRICULUM FOR B.A. IN CLINICAL LABORATORY SCIENCES

Students may earn the B.A. in Clinical Laboratory Sciences by completing the curriculum outlined as follows, with the additional requirements that: (1) in conjunction with meeting the General Education Requirements, students must take a total of 27 credits in Human Values and Social Context, of which at least 12 credits must be at the 200 level or above; (2) students must complete a minimum of 72 credits outside the major (credit hours in courses outside of the Department of Biological Science that are required for the Biology major still count toward the 72 hours). A minimum of 16 hours of chemistry is required by the National Accrediting Agency for Clinical Laboratory Science.

Chemistry Requirement

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
AND	
CHY 122 Molecular Basis of Chemical Change	3
CHY 124 Molecular Basis of Chemical Change Lab	1
BMB 221 Organic Chemistry	3
BMB 221L Laboratory in Organic Chemistry	1
BMB 322 Biochemistry	3
BMB 322L Introductory Biochemistry Laboratory	1
	16

SAMPLE CURRICULUM: COURSES REQUIRED BY BOTH MEDICAL TECHNOLOGY AND CYTOTECHNOLOGY

First Year - Medical Technology and Cytotechnology

BIO 100 Basic Biology	4
BIO 208 Anatomy and Physiology	4
CHY 121/123 Introduction to Chemistry/Lab	4
ENG 101 College Composition	3
MAT 122 Pre-Calculus	4
OR	
MAT 126 Calculus I	4
OR	
MAT 151 Calculus for the Life Sciences	4

NFA 117 Issues and Opportunities	1
General Education Courses/Electives	<u>6</u>
Total Hours	30

Sophomore Year - Medical Technology and Cytotechnology

BIO 280 Introduction to Cell and Molecular Biology	3
BIO 305 Medical Parasitology	3
BIO 336 Developmental Biology*	4
BMB 221 Organic Chemistry	3
BMB 221L Laboratory in Organic Chemistry	1
BMB 300 General Microbiology	3
BMB 305 General Microbiology Laboratory	2
BMB 322 Biochemistry	3
BMB 322L Introductory Biochemistry Laboratory	1
General Education Courses/Electives	<u>6</u>
Total Hours	29

Junior Year - Medical Technology

BIO 421 Introduction to Clinical Laboratory Methods	4
BIO 451 Histology	4
BIO 480 Cell Biology	4
BMB 420/421 Pathogenic Microbiology and Serology/Laboratory	4
BMB 440 Introductory Immunology	3
MAT 232 Principles of Statistical Inference	3
General Education Courses/Electives	<u>9</u>
Total Hours	31

Junior Year - Cytotechnology

BIO 451 Histology	
BIO 480 Cell Biology	
MAT 232 Principles of Statistical Inference	
One elective from the following:	
BIO 438 Morphogenesis and Differentiation	
BIO 462 Genetics	
BMB 420/421 Pathogenic Microbiology and Serology/Laboratory	
BMB 440 Introductory Immunology	
General Education Courses/Electives	<u>1</u>
Total Hours	29-3

Senior Year Practicum - Medical Technology

(Eastern Maine Medical Center)	
BIO 422 Clinical Hematology	
BIO 423 Clinical Microbiology	
BIO 424 Clinical Immunohematology	
BIO 425 Clinical Chemistry	
BIO 426 Clinical Microscopy	
Total Hours	3

Senior Year Practicum - Cytotechnology

(Fletcher Allen Health Care School of Cytotechnology at the Medical Center Hospital of Vermont or another comparable, medical center-based accredited program)	
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TOTAL CREDITS REQUIRED: 120

* Sophomore year Cytotechnology.

BIOSYSTEMS SCIENCE AND ENGINEERING

Associate Professor Wallace (Chairperson)
Professors Bayer, Langille, Riley, Smagula, Stokes
Associate Professors Cappiello, Christensen, Congleton, Hedstrom, Mitchell, Reeves, Schupp, Soule
Assistant Professors Donahue, Seymour, Weber
Assistant Extension Professor and Associate Professor Opitz
Associate Extension Professor and Assistant Professor Yarborough
Assistant Extension Professor and Assistant Professor Marcinkowski

The Department of Biosystems Science and Engineering in the College of Natural Science, Forestry and Agriculture consists of four programs: Animal and Veterinary Science (AVS), Bio-Resource Engineering (BRE), Bio-Resource Engineering Technology (BRT) and Landscape Horticulture (LHC). The department offers the B.S. degree in Animal and Veterinary Science, Bio-Resource Engineering, Bio-Resource Engineering Technology, and Landscape Horticulture and M.S. degree in Animal Science, Bio-Resource Engineering and Landscape Horticulture, Soil and Environmental Sciences. In addition, the BRE program sponsors the B.S. degree in Forest Engineering with the Department of Forest Management. AVS participates in the Ph.D. degree in Food and Nutritional Sciences, AVS and BRE participate in M.S. and Ph.D. in Marine BioResources, and AVS and LHC participate in the Ph.D. degree in Biological Sciences.

BACHELOR OF SCIENCE IN ANIMAL AND VETERINARY SCIENCES (Pre-veterinary)

The Bachelor of Science in Animal and Veterinary Sciences is administered by the faculty of the Department of Biosystems Science and Engineering.

The animal sciences curriculum is designed to provide a broad practical training as well as a thorough understanding of the anatomy, breeding, diseases, genetics, management, nutrition, and biology of large animals, avian species and laboratory animals.

Because a basic knowledge in animal sciences is fundamental for successful work in many job situations, the curriculum offers a choice of electives so students may adapt their course of study to meet special professional interests or needs. Through the proper selection of options, students can prepare for admission to graduate school, veterinary college, to teach sciences in secondary schools, to perform technical sales and service work in animal industry for careers as laboratory animal technicians, or to develop such animal production enterprises as dairy, or livestock farms.

Animal Science courses also serve as elective opportunities for students in other agricultural and life sciences, and in other colleges. The Department also administers the Pre-Veterinary Science Program which provides an opportunity for students to be certified to teach high school biology and agriculture. This Department is also part of the interdisciplinary group that administers the program in Aquaculture.

Superior students should consider continuing their studies at the graduate level. The Department offers the Master of Science degree in Animal Science for a program of study in animal nutrition, physiology, management, or breeding. The Doctor of Philosophy degree may be earned in Food and Nutritional Sciences, Biological Sciences, or Marine Bio-Resources.

COURSE AND CREDIT REQUIREMENTS

Animal Science Courses	42
Science and Math Courses	26
Humanities and Social Sciences	18
Communications	10
Career Enhancement	18

General Electives (Including NFA 117: Issues and Opportunities)	6 (1)
TOTAL CREDITS REQUIRED	120

Animal Science Courses

AVS 145 Animal Science	4
AVS 351 Animal Science Techniques	2
AVS 396 Field Experience in Animal, Veterinary and Aquatic Science	4
AVS 401 Senior Paper in Animal Science and Aquaculture I	2
AVS 402 Senior Paper in Animal Science and Aquaculture II	1
AVS 437 Animal Diseases	3
AVS 455 Animal Nutrition	3
AVS 461 Animal Breeding	3
AVS 463 Feeding Companion Animals	1
AVS 480 Physiology of Reproduction	3
AVS 346 Dairy Cattle Technology	3
AVS 349 Laboratory Animal Technology	3
AVS 466 Feeding Dairy Cattle	2

Science, Math and Computer Courses

BIO 100 Basic Biology	4
BIO 204 Animal Biology	4
BIO 377 Animal Physiology	2
BIO 378 Animal Physiology Laboratory	3
BIO 462 Principals of Genetics	3
CHY 121 Introduction to Chemistry	4
CHY 132 Applications of Chemistry	4
COS 100 Introduction to Personal Computers	3
OR	
MAT 232 Principals of Statistical Inference	3
MAT 122 Pre-Calculus	4
OR	
MAT 126 Calculus I	4
OR	
MAT 151 Calculus for the Life Sciences	4

Communication Courses

AVS 200 Topics in Animal and Aquatic Science	1
COM 103 Fundamentals of Public Communication	3
ENG 101 College Composition	3
ENG 317 Business and Technical Writing	3

Career Enhancement Courses

Students should select a minimum of 18 credits in an area of study to be chosen in consultation with their academic advisor. Possible areas of study include, but are not limited to, pre-veterinary sciences, education, business, journalism, laboratory sciences, and production agriculture.

Pre-veterinary Concentration

Courses recommended:	
BIO 333 Comparative Anatomy	4
BIO 336 Developmental Biology	4
BMB 300 General Microbiology	3
BMB 305 General Microbiology Lab	2
BMB 322 Biochemistry	3
CHY 251 Organic Chemistry I	3
CHY 253 Organic Chemistry I Laboratory	2
CHY 252 Organic Chemistry II	3
CHY 254 Organic Chemistry II Laboratory	2
MAT 151 Calculus for the Life Science I	4
PHY 111 General Physics I	4
PHY 112 General Physics II	4
Free Electives	0-6

Agricultural Education

Students in the Department of Biosystems Science and Engineering have the opportunity to participate in the Regional Agricultural Education program in association with the University of New Hampshire. The student would receive a degree in Animal and Veterinary Sciences with a major in Agricultural Education.

BACHELOR OF SCIENCE IN BIO-RESOURCE ENGINEERING

The Bio-Resource Engineering curriculum combines study in engineering and mathematics, the biological sciences, and the physical sciences to provide a unique background so that students may solve engineering problems and produce engineering designs in fields associated with aquaculture, agriculture, food and fiber processing, and in other environmentally related fields. The curriculum is designed to foster in each student the capability to solve the problems of society that are susceptible to engineering treatment; to develop in the student a sensitivity to socially related technical problems; to help the student develop a sense of professionalism and the habit of ethical conduct; to help the student develop an understanding of the engineer's responsibility to protect the public health and safety; and to instill a desire in the student to maintain professional competence through lifelong learning.

The basic curriculum, combined with electives in engineering, the humanities and social sciences, and in the life sciences, and culminating with a three-semester engineering design experience, provides a broad base of knowledge for engineering practice in today's society. Students may specialize in one of four areas according to their interests and needs. Areas of concentration are: (1) agricultural engineering; (2) aquacultural engineering; (3) food engineering; and (4) environmental science. With the rapidly expanding world population, a rising demand for higher standards of living, and with limited natural resources, Bio-Resource engineering graduates are in great demand.

Employment opportunities for Bio-Resource engineers are as diverse as the food and fiber industries themselves. Graduates in Bio-Resource Engineering may be employed as design engineers by machinery and aquacultural systems manufacturers, and by governmental entities; as sales engineers by machinery, food, or chemical companies; as research engineers by industry, government, or state experiment stations; or in teaching or extension positions by universities. Some work as consulting engineers. A number of opportunities for foreign service are available.

The curriculum in Bio-Resource Engineering is a joint responsibility of the College of Engineering and the College of Natural Sciences, Forestry and Agriculture and is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

This degree requires satisfactory completion of at least 122 degree hours at an accumulative grade point average of not less than 2.0 in a course of study which conforms to the curriculum and the concentrations below.

CONCENTRATIONS

9 credits from any one concentration.

Agricultural Engineering

AES 100 Plant Science
AES 101 Crop Systems
AES 140 Soil Science
BRE 452 Fluid Power and Robotics
BRE 466 Irrigation and Containment
MEE 380 Design I
MEE 381 Design II
MEE 435 Internal Combustion Engines
MEE 455 Advanced Strength of Materials

Aquacultural Engineering

BIO 213 Introduction to Marine Science
BIO 472 Aquatic Food Webs
BRE 466 Irrigation and Water Supply Design
CIE 558 Coastal Engineering
SMS 211 Aquaculture
SMS 220 Introduction to Marine Resources
SMS 270 Introduction to Oceanography
SMS 320 Techniques in Aquaculture
SMS 409 Shell Fisheries Biology

Food Engineering

BMB 300 General Microbiology
BRE 497 Special Problems Bio-Resource Engineering-Food Engineering
FSN 301 Introduction to Food Science
FSN 502 Food Processing I
MEE 231 Thermodynamics II
MEE 386 Refrigeration and Air Conditioning Systems Design
MEE 432 Heat Transfer
REP 365 Food and Fiber Marketing

Environmental Sciences

BRE 466 Irrigation and Water Supply
BRE 497 Special Topics: Environmental Aspects of BRE
BRE 497 Special Topics: Compost Engineering
BRE 497 Special Topics: Des./Use Const. Wetlands
CIE 231 Fundamentals of Environmental Engineering
CIE 431 Pollutant Fate/Transport
INT 230 Waste Management
SIE 271 Introduction to Geographic Information Systems

GRADUATE WORK IN BIO-RESOURCE ENGINEERING

The degrees of Master of Science (Bio-Resource Engineering) and Master of Engineering (Bio-Resource Engineering) are offered with options for specialization in soil and water engineering, farm structures, agricultural power and machinery, electric power and processing, and fisheries and aquaculture.

Several research assistantships are available. Incumbents devote half time to research on approved projects of the Maine Agricultural and Forestry Experiment Station.

BACHELOR OF SCIENCE IN BIO-RESOURCE ENGINEERING TECHNOLOGY

The Bachelor of Science in Bio-Resource Engineering Technology is offered by the faculty of Bio-Resource Engineering.

Courses in the basic sciences and mathematics, engineering technology science and engineering, combined with electives in the natural sciences and humanities and social sciences provide a practical education for the student interested in applying the principles of engineering to the solution of problems in the natural and environmental

sources. The educational agenda is culminated with a two semester postone application experience.

The basic curriculum is strengthened by elective options and students may specialize in one of six areas according to interests and needs. Areas of concentration are: (1) forestry; (2) sustainable agriculture; (3) food processing; (4) aquaculture; and (5) environmental science. Electives in engineering technology and in the life sciences provide a broad base of knowledge for practice as an engineering technologist.

Graduates will find employment as managers or maintenance supervisors of production and processing facilities, technical representatives for machinery and equipment companies, and support, training or installation personnel for manufacturers, material suppliers, processors, contractors and primary producers.

This degree requires satisfactory completion of at least 120 credit hours at an accumulative grade point average of not less than 2.0 in a course of study which conforms to the curriculum in the box and the concentrations below.

Graduates of the associate degree programs in the Maine Technical Colleges who are qualified for transfer into baccalaureate programs may transfer up to 60 credits for courses in which they have received a grade of "C" or better. Two additional years will normally be required to complete the degree of Bachelor of Science in Bio-Resource Engineering Technology.

BIO-RESOURCE ENGINEERING TECHNOLOGY CONCENTRATIONS

Require at least 15 credits from any one concentration.

Aquaculture

213 Introduction to Marine Science	3
485 The Sea and Civilization: An Introduction to Maritime Studies I	3
486 The Sea and Civilization: An Introduction to Maritime Studies II	3
211 Aquaculture	3
220 Introduction to Marine Resources	2
270 Introduction to Oceanography	3
409 Shellfisheries Biology	3

Environmental Sciences

220 Insects and Society	3
482 Pesticides and Environment	3
105 Principles of Sustainable Agriculture	3
344 Soil and Water Conservation	3
160 Environmental Issues	3
230 Waste Management	3
323 Introduction to Conservation Biology	3
200 Ecology	3
201 Ecology Lab	2
270 Wetlands Ecology	1

Food Processing

300 General Microbiology	3
270 World Food and Nutrition	3
330 Introduction to Food Science	3
350 Food Process Sanitation	3
502 Food Processing I	4
340 Heat Transfer	3

Forestry

150 Forest Soil Science	3
453 Forest Harvesting	2
105 Forest Measurements	3
407 Forest Ecology	3
408 Silviculture	2
409 Silviculture Lab	2
444 Forest Economics	3

INT 482 Pesticides and Environment	3
WSC 314 Wood and Wood Fiber Processing	4
WSC 318 Wood and the Environment	3

Sustainable Agriculture

AES 100 Plant Science	4
AES 101 Cropping Systems	4
AES 105 Principles of Sustainable Agriculture	3
AES 140 Soil Science	3
AES 141 Soil Science Lab	1
AES 445 Agricultural Ecology	3
INT 482 Pesticides and the Environment	3
REP 454 Introduction to Production Economics	3



SUGGESTED CURRICULUM B.S. in BIO-RESOURCE ENGINEERING TECHNOLOGY

First Year

Fall Semester

BRE 121 Introduction to Bio-Resource Engineering	2
ENG 101 College Composition	3
INT 110 Modern Economic Problems	3
TME 151 Technical Mathematics I: Precalculus	3
PHY 111 General Physics I	4
OR	
PHY 107 Basic Physics	4
TOTAL HOURS	15

Spring Semester

BRE 122 Fundamentals of Bio-Resource Engineering	2
TME 152 Technical Mathematics II: Pre-calculus and Introductory Calculus	3
MET 150 Statics	3
PHY 112 General Physics II	4
OR	
PHY 108 Basic Physics	4
General Education Requirement	3
TOTAL HOURS	15

Sophomore Year

Fall Semester

BRT 110 Shop Fundamentals	2
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
MET 217 Dynamics	3
MET 219 Strength of Materials	3
TME 253 Applied Calculus for Engineering Technology	4
TOTAL HOURS	16

Spring Semester

BIO 100 Basic Biology	4
COM 103 Fundamentals of Public Communication	3
EET 215 Circuits, Machines, and Electronics	3
General Education Requirement	3
Technical Electives	3
TOTAL HOURS	16

Junior Year

Fall Semester

BRT 360 Processing Machinery	3
ENG 317 Business and Technical Writing	3
MET 233 Thermodynamics	3
General Education Requirement	3
Technical Electives	3
TOTAL HOURS	15

Spring Semester

BRT 367 Power and Biomass Industries	3
BRT 368 Electrification	3
EET 330 Electrical Applications	3
Technical Elective	6
TOTAL HOURS	15

Senior Year

Fall Semester

BRT 365 Water and Waste	3
BRT 362 Fluid Power Technology	3
BRE 380 Senior Seminar	1
Technical Elective	3
BRT 392 Senior Capstone Project	2
General Education Requirement	3
TOTAL HOURS	15

Spring Semester

BRT 363 Buildings and Environment	3
BRT 369 Processing Technology	3
Technical Elective	3
BRT 392 Senior Capstone Project	1
Humanities Elective	3
General Education Requirement	3
TOTAL HOURS	13

TOTAL CREDITS REQUIRED: 120

BACHELOR OF SCIENCE IN LANDSCAPE HORTICULTURE

The Landscape Horticulture (LHC) Program at the University of Maine offers either a science or business-based curriculum that provides students the opportunity to gain theoretical and practical knowledge in areas such as plant ecology and physiology, ornamental plant production and maintenance, landscape design/construction, turfgrass management, business management and many related areas. The program provides excellent training for individuals seeking careers in landscape/nursery operation, landscape design/construction, turf management, public horticulture and entrepreneurial enterprises. The LHC program also provides a strong background for students interested in pursuing graduate education in areas ranging from Landscape Architecture to many areas of advanced plant science. A federal program review team recently ranked the Maine program as the best in the Northeast.

The Landscape Horticulture curriculum offers a challenging academic experience for the serious student; requiring both synthesis and application of learned concepts. Extensive use is made of laboratory and studio activities to illustrate hands on applications of theoretical principles. Outside the classroom, there are additional opportunities for the LHC student to gain valuable knowledge and experience. A strong working relationship with state, national and international horticulture industry members with ties to the Landscape Horticulture Program has been an important factor contributing to nearly a 100% employment record for our graduates.

For more information:

Phone: (207) 581-2938 or (207) 581-2948

E-Mail: wlmitch@apollo.umenfa.edu

Web Site: www.ume.maine.edu/~aes/Undergrad/Landscape/hortic.htm

LANDSCAPE HORTICULTURE/SCIENCE CONCENTRATION

Proficiency in Computer Science is required. "LHC" courses a "D" or "E" will not be counted towards graduation credit.

Orientation

NFA 117 Issues and Opportunities-LHC

Basic Sciences and Mathematics

AES 100 Plant Science

OR

BIO 101 Introduction to Botany

AES 457 Plant Pathology

BIO 452/453 Plant Physiology/Lab

BMB 207/208 Fundamentals of Chemistry

OR

CHY 121/123 Introduction to Chemistry/Lab

AND

CHY 132/134 Applications of Chemistry/Lab

MAT 122 Pre-Calculus

Plus choose one from below:

AES 449 Soil Organic Matter and Fertility

AES 482 Pesticides in the Environment

BIO 464 Plant Taxonomy

INT 323 Conservation Biology

Required Hours

28

Communications

COM 103 Fundamentals of Public Communication

ENG 101 College Composition

ENG XXX Literature Course

Required Hours

Core Courses

AES 140/141 Soil Science/Lab

AES 327 Introduction to Applied Entomology

AES 440 Soil Chemistry and Plant Nutrition

INT 110 Modern Economic Problems

LHC 110 Horticulture

LHC 111 Horticulture Lab

LHC 120 Herbaceous Landscape Plants

LHC 221/222 Woody Landscape Plants I/II

LHC 223 Plant Production

LHC 225 Landscape Graphics Communication

LHC 227 Landscape Construction (in process)

LHC 325 Turfgrass Management

LHC 328 Landscape Design

LHC 370 Seminar in LHC

LHC 396 Field Experience in LHC (in process)

LHC 410 Plant Propagation

LHC 425 Landscape Management

LHC 428 Professional Practice in Landscape Horticulture

REP 459 Resource Based Business Finance

plus Free Electives

plus General Education Electives

Required Hours

Minimum Hours Required for Graduation:

LANDSCAPE HORTICULTURE / BUSINESS CONCENTRATION

Core Courses

Proficiency in Computer Science is required. "LHC" courses with "D" or "E" will not be counted towards graduation credit.

Orientation

EA 117 Issues and Opportunities-LHC 1

Basic Sciences and Mathematics

ES 100 Plant Science 4

BO 101 Introduction to Botany 4

BO 457 Plant Pathology 4

IB 207/208 Fundamentals of Chemistry 8

BY 121/123 Introduction to Chemistry/Lab 4

BY 132/134 Applications of Chemistry/Lab 4

MT 115 Applied Math for Business and Economics 3

Required Hours 20

Communications

CM 103 Fundamentals of Public Communication 3

EN 101 College Composition 3

EN 317 Business and Technical Writing 3

EN XXX Literature Course 3

Required Hours 12

AES 140/141 Soil Science/Lab	4
AES 327 Introduction to Applied Entomology	4
BUA 201 Principles of Accounting I	3
BUA 202 Principles of Accounting II	3
INT 110 Modern Economic Problems	3
LHC 110 Horticulture	3
LHC 111 Horticulture Lab	1
LHC 120 Herbaceous Landscape Plants	3
LHC 221/222 Woody Landscape Plants I/II	6
LHC 223 Plant Production	4
LHC 225 Landscape Graphics Communication	3
LHC 227 Landscape Construction (in process)	4
LHC 325 Turfgrass Management	3
LHC 328 Landscape Design	4
LHC 370 Seminar in LHC	1
LHC 396 Field Experience in LHC (in process)	1-9
LHC 425 Landscape Management	3
LHC 428 Professional Practice in Landscape Horticulture	4
REP 254 Introduction to Production Economics	3
REP 459 Resource Based Business Finance	3
REP 465 Food and Fiber Marketing	3
plus Free Electives	9
plus General Education Electives	15
Required Hours	90

TOTAL CREDITS REQUIRED:122

SCHOOL OF BUSINESS ADMINISTRATION

*Associate Professor Gibson, Interim Dean and Director of The Business School
Instructor Pechinski, Associate Dean*

*Professors Ford, Gilmore, Strong
Associate Professors Colburn, Lawson
Assistant Professors Borgman, Manev, McKeage, McMullen, Oakley, Overmyer, Vollmers
Lecturer Ingalls*

The undergraduate and MBA programs at the University of Maine are the only business programs in Maine accredited by the American Assembly of Collegiate Schools of Business.

The Maine Business School offers a four-year program in business administration. Upon successful completion of the prescribed curriculum the student is awarded the Bachelor of Science degree.

The Business School also provides a graduate program leading to the degree of Master of Business Administration (MBA). The graduate offerings of The Maine Business School are described in the Graduate School Catalog.

UNDERGRADUATE PROGRAM

The undergraduate business program prepares students to participate in a global economy that increasingly relies on computer-based technology. The program provides the broad education necessary for successful business management in a rapidly changing environment. No attempt is made to provide detailed specialized training in particular business tasks. Rather, the program is designed to develop skills and attitudes of mind that will enable students to cope successfully with the emerging problems of business management in the years ahead, and to develop a habit of lifelong learning.

Implementation of this program is in three general phases:

- 1. The General Foundation:** During the first two years, students acquire a broad education in the liberal arts and sciences. Through courses in areas such as English, communications, international studies, mathematics, computer science, economics and psychology, students build a strong foundation for future business course work and lifelong learning.
- 2. The Business Core:** The core business courses, most of which are taken during the junior year, provide an understanding of the functional areas common to most businesses. This core program includes courses in accounting, finance, law, marketing, management, information systems, production, international business and business policy.
- 3. The Fields of Concentration:** During the junior and senior year students acquire more advanced knowledge of a major field by taking fifteen hours beyond the introductory level in a chosen concentration. The fields in which advanced work may be taken are accounting, finance, management, or marketing.

Upon completion of the program, business students will have acquired a broad background in the arts and sciences, a basic knowledge of the major functional areas of business, and more advanced knowledge in a particular field.

GENERAL INFORMATION

ADMISSION

Students are usually admitted to The Maine Business School as first-year students in the University. Admission requirements for the business program are the same as those for the University. (See

"Admissions" section in this catalog.) All deficiencies in entrance requirements must be removed before registering for the junior year. Students who transfer from other colleges must satisfy all basic entrance requirements within one year.

TRANSFER CREDIT

The Maine Business School adheres to University-wide transfer policies. In addition, as an institution accredited by the American Assembly of Collegiate Schools of Business (AACSB), The Maine Business School evaluates transfer credit consistent with AACSB accreditation policies. These policies emphasize the need for business courses to be built upon a foundation of general education courses taken in the first-year and sophomore year.

Transfer credit for business courses is granted from institutions that are accredited by the AACSB. For courses taken at institutions not accredited by the AACSB, no transfer credit is granted for business courses taken during the first-year and sophomore year, with the exception of Principles of Accounting I and II, the Legal Environment of Business, and Introduction to Business. However, a transfer student from an institution not AACSB-accredited, but designated as regionally accredited (including other campuses of the University of Maine System), who has taken a business course at the lower division level which is offered at the upper division level at the University of Maine may receive credit for the course by successfully completing proficiency examination.

All courses for which transfer credit is requested will be evaluated by the Office of Student Records and the Associate Dean of The Maine Business School. Transfer students must complete at least one full year of course work at The Maine Business School, and a student's last thirty credit hours must be taken at this campus.

CHANGE OF COLLEGE POLICY AT UMAINE

Students in baccalaureate programs from other Colleges at UMaine must have a minimum accumulative grade point average of 2.0.

SENIOR YEAR IN RESIDENCE

To receive a B.S. in Business Administration degree at the University of Maine, a student must fulfill the senior year residency requirement. This requirement stipulates that the last 30 degree hours in the academic program must be completed at the University of Maine.

At least 50% of the total credit hours earned in Business and Economics must be taken at the University of Maine.

STUDY AWAY

Students who are in good academic standing may take advantage of various opportunities available for spending one or two semesters studying business administration and other subjects in a foreign country. Such study usually takes place in the junior year. (For example is the spring semester at the University of Grenoble in France. The Universities of Maine, Connecticut, New Hampshire, Rhode Island and Vermont cooperate in sending business students a

faculty coordinator to this program. Students have an opportunity to further their knowledge of international business in an English-speaking program while gaining exposure to French history, language, and culture.

HONORS PROGRAM

Students interested in the Honors Program should contact Professor Carol Gilmore, Honors Coordinator. First-year students and sophomores of marked academic ability are encouraged to consider participation in the University Honors Program. Qualified students may be admitted to the Honors Program at any time up to the beginning of the junior year. HON 101, HON 102, HON 201, HON 202, HON 301, and HON 302 are taken with students from other colleges within the University. These courses satisfy Business School requirements in the area of humanities/fine arts or free electives. HON 397, HON 498, and HON 499 are taken during the junior and senior years, and involve individual research and writing a senior honors thesis. Additional information about the Honors Program will be found in the "Honors" section of this catalog.

GRADUATION REQUIREMENTS

Completion of Business School requirements leads to the Bachelor of Science degree. All students are required to complete 120 degree hours.

Students must have a 2.0 accumulative grade point average to graduate.

All course work taken in business and economics must also be completed with a 2.0 ("C") accumulative average for a student to be eligible for a degree.

The required course work for the B.S. in Business Administration is given below:

B.S. IN BUSINESS ADMINISTRATION PROGRAM

General Foundation Subjects (60 credits) Note: No more than six (6) hours of mathematics and nine (9) hours of economics may be taken as part of these 60 credit hours.

1. Humanities and Fine Arts (18 credits)
 - ENG 101 College Composition
 - ENG 317 Business and Technical Writing
 - COM 103 Fundamentals of Public Communication

At least three (3) of the remaining nine (9) credit hours must have an ENG designation. The remainder must be selected in: art, communications, the classics, English, foreign languages, history, journalism, literature, music, philosophy and theatre. These electives should be selected to satisfy the University-wide general education requirements.
2. Social and Behavioral Sciences (15 credits)
 - PSY 100 General Psychology
 - ECO 120 Principles of Microeconomics
 - ECO 121 Principles of Macroeconomics Only one additional three (3) credit economics course may be taken in partial fulfillment of this requirement. The remaining credits must be taken in: anthropology, Canadian studies, political science, psychology, and sociology. These credits should be selected to satisfy University-wide general education requirements.
3. Mathematics and Science (15 credits)
 - MAT 115 Applied Mathematics for Business and Economics
 - MAT 215 Introduction to Statistics for Business and Economics*
 - COS xxx Any one of the following: COS 120 Introduction to Programming; COS 211 Principals of Data Processing (recommended for business students); COS 215 Introduction to Computing Using Fortran; Cos 220 Introduction to Computer Science I. The remaining 6 credits must be taken to satisfy the University-wide science requirement. Courses must be selected from the approved list of general education science courses in such fields as: animal science, aquaculture, astronomy, biology,

botany, chemistry, ecology, entomology, environmental sciences, food sciences, geology, horticulture, physics, plant science, soil science and zoology.

4. Outside Electives (12 credits)

With the exception of mathematics, courses in any fields listed under areas 1, 2, or 3 above may be taken to fulfill this requirement. However, economics credits in areas 2 and 4 cannot exceed nine (9) hours. Students should use these electives to help complete the University-wide general education requirements.
- B. Core Requirements in Business (30 credits)
 - BUA 201 Principles of Accounting I
 - BUA 202 Principles of Accounting II
 - BUA 220 The Legal Environment of Business
 - BUA 325 Principles of Management and Organization
 - BUA 335 Principles of Management Information Systems
 - BUA 337 Production and Operations Management
 - BUA 343 Introduction to International Business
 - BUA 349 Administrative Policy and Business Environment (Seniors only)
 - BUA 350 Business Finance
 - BUA 370 Marketing
- C. Field of Concentration (15 credits)

All students must complete a field of concentration in at least one of the functional areas of Business Administration: Accounting, Finance, Management and Marketing.

 1. Accounting (15 credits)

Required:

 - BUA 301 Intermediate Accounting I
 - BUA 302 Intermediate Accounting II
 - BUA 305 Cost Accounting
 - BUA 307 Advanced Accounting
 - BUA 310 Auditing

Students concentrating in accounting are strongly encouraged to take the following courses as free electives:

 - BUA 306 Advanced Managerial Accounting
 - BUA 308 Emerging Issues and International Accounting
 - BUA 312 Federal Taxation of Individuals
 - BUA 315 Taxation of Corporations, Partnerships and Estates
 2. Finance (15 credits)

Required:

 - BUA 351 Corporate Treasury Dynamics
 - BUA 352 Financial Institutions
 - BUA 353 Investment Strategy
 - BUA 366 Decision Support Systems for Management

And any *one* of the following:

 - BUA 301 Intermediate Accounting I
 - BUA 305 Cost Accounting
 - BUA 354 Speculative Markets
 - ECO 420 Intermediate Microeconomics
 - ECO 471 Public Finance and Fiscal Policy
 - ECO 372 State and Local Government Finance
 - ECO 475 Industrial Organization
 3. Management (15 credits)

Required:

 - BUA 326 Dynamics of Organization and Behavior
 - BUA 327 Seminar in Contemporary Management Problems
 - BUA 330 Personnel Management and Industrial Relations
 - BUA 345 International Management

And any *one* of the following:

 - BUA 328 Canadian/U.S. Business: A Comparison
 - BUA 331 Labor-Management Relations
 - BUA 340 Problems of Small Business
 - BUA 364 Database Management Systems
 - BUA 366 Decision Support Systems for Management
 4. Marketing (15 credits)

Required:

 - BUA 376 International Marketing
 - BUA 378 Marketing Research
 - BUA 380 Managerial Marketing
 - BUA 382 Consumer Behavior

And any *one* of the following:

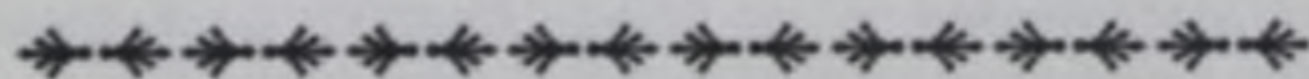
 - BUA 366 Decision Support Systems for Management
 - BUA 372 Advertising

- BUA 374 Sales Management
- BUA 375 Retail Management
- D. Free Electives (15 credits)
- BUA 100 Majoring in Business (required for all first-year students)

Minimum credits required for graduation: 120 degree hours

300-Level COURSE POLICY

All students, must have Junior Standing (53 or more degree hours completed) in order to take any BUA undergraduate course (except BUA 201, BUA 202, and BUA 220 which require Sophomore Standing (23 or more degree hours), and BUA 100 which is taken during the first year). Students are strongly advised to take BUA 201, BUA 202, and BUA 220 during their Sophomore year (First-year Students are not allowed to take BUA 201, BUA 202, or BUA 220).



SUGGESTED CURRICULA

During the first year students should complete BUA 100, ENG 101, COM 103, PSY 100, and MAT 115. Students will also begin to satisfy the general education and international area studies requirements.

The following is a *recommended* sequence of courses:

First Year

Fall Semester

- BUA 100 Majoring in Business
- ENG 101 College Composition
- PSY 100 General Psychology
- General Education: Western Cultural Tradition
- International Area Studies Elective
- Outside Elective

Spring Semester

- COM 103 Fundamentals of Public Communication
- MAT 115 Applied Mathematics for Business and Economics
- General Education: Artistic and Creative Expression
- International Area Studies Elective
- Outside Elective

Sophomore Year

During the sophomore year students should complete BUA 201, BUA 202, BUA 220, ECO 120, ECO 121, MAT 215 and the COS requirement. In addition we recommend that students complete the general education (outside) requirements.

Fall Semester

- BUA 201 Principles of Accounting I
- ECO 120 Principles of Microeconomics
- MAT 215 Introduction to Statistics for Business & Economics
- General Education: Population and the Environment
- OR
- BUA 220 The Legal Environment of Business
- General Education: Science

Spring Semester

- BUA 202 Principles of Accounting II
- ECO 121 Principles of Macroeconomics
- COS xxx (recommend: COS 211)
- BUA 220 The Legal Environment of Business
- OR
- General Education: Population and the Environment
- General Education: Science

JUNIOR AND SENIOR YEARS

Students choose an area of concentration at the beginning of, or during, the junior year. During the junior and senior years students must complete all CORE REQUIREMENTS and the requirements for the AREA OF CONCENTRATION. By the end of the senior year students must have completed all requirements listed on the graduation requirements sheet for the B.S. in Business Administration with a 2.0 overall grade point average (GPA) and a 2.0 GPA in business and economics courses.

ACCOUNTING

Junior Year

Fall Semester

- BUA 301 Intermediate Accounting I
- BUA 305 Cost Accounting
- BUA 312 Federal Taxation of Individuals (strongly recommended)
- BUA 325 Principles of Management and Organization
- BUA 350 Business Finance

Spring Semester

- BUA 302 Intermediate Accounting II
- BUA 306 Advanced Managerial Accounting (strongly recommended)
- BUA 370 Marketing
- BUA 335 Principles of Management Information Systems
- ENG 317 Business and Technical Writing

Senior Year

Fall Semester

- BUA 308 Emerging Issues and International Accounting (strongly recommended)
- BUA 310 Auditing
- BUA 337 Production and Operations Management
- BUA 343 Introduction to International Business
- +(3) credits

Spring Semester

- BUA 307 Advanced Accounting
- BUA 315 Taxation of Corporations, Partnerships and Estates (strongly recommended)
- BUA 349 Administrative Policy and Business Environment
- +(6) credits

FINANCE

Junior Year

Fall Semester

- BUA 325 Principles of Management and Organization
- BUA 335 Principles of Management Information Systems
- BUA 350 Business Finance
- ENG 317 Business and Technical Writing
- +(3) credits

Spring Semester

- BUA 337 Production and Operations Management
- BUA 343 Introduction to International Business
- BUA 366 Decision Support Systems for Management
- BUA 370 Marketing
- +(3) credits

Senior Year

Full Semester

BUA 352 Financial Institutions
BUA 353 Investment Strategy
Finance Elective
+(6) credits

Spring Semester

BUA 351 Corporate Treasury Dynamics
Finance Elective
BUA 349 Administrative Policy and Business Environment
+(6) credits

MANAGEMENT

Junior Year

Full Semester

BUA 325 Principles of Management and Organization
BUA 335 Principles of Management Information Systems
BUA 370 Marketing
ENG 317 Business and Technical Writing
+(3) credits

Spring Semester

BUA 337 Production and Operations Management
BUA 343 Introduction to International Business
BUA 350 Business Finance
Management Elective
+(3) credits

Senior Year

Full Semester

BUA 326 Dynamics of Organization and Behavior
BUA 330 Personnel Management and Industrial Relations
Management Elective
+(6) credits

Spring Semester

BUA 327 Seminar in Contemporary Management Problems
BUA 345 International Management
OR
BUA 328 Canadian/U.S. Business: A Comparison
OR
BUA 376 International Marketing
BUA 349 Administrative Policy and Business Environment
+(6) credits

MARKETING

Junior Year

Fall Semester

BUA 325 Principles of Management and Organization
BUA 335 Principles of Management Information Systems
BUA 343 Introduction to International Business
BUA 370 Marketing
ENG 317 Business and Technical Writing

Spring Semester

BUA 337 Production and Operations Management
BUA 350 Business Finance
BUA 376 International Marketing
Marketing Elective
+(3) credits

Senior Year

Fall Semester

BUA 378 Marketing Research
BUA 382 Consumer Behavior
Marketing Elective
+(6) credits

Spring Semester

BUA 349 Administrative Policy and Business Environment
BUA 380 Managerial Marketing
Marketing Elective
+(6) credits

CHEMICAL ENGINEERING

INCLUDING PULP AND PAPER TECHNOLOGY

Professor Ruthven (Chairperson)

Professors Genco, (Calder Professor of Pulp and Paper Engineering and Science), Hassler, Kiran (Gottesman Research Professor of Chemical Engineering), LePoutre (Ober Chair), Pendse (University of Maine Pulp and Paper Foundation Faculty Fellow); Thompson (University of Maine Pulp and Paper Foundation Professor of Chemical Engineering)

Associate Professors Co, Hwalek, Bousfield (University of Maine Pulp and Paper Foundation Faculty Fellow)

Research Associate Professor M. Hill

Faculty Associate Marshall

Cooperating Professors B. Cole, B. Goodell, C. Tarr, S. Shaler

Chemical engineers are primarily concerned with the design, operation and management of processing systems to alter and upgrade products and materials so that they are more useful for mankind, and to do so with the greatest possible economy and the least possible harm to the environment. The basic chemical engineering curriculum provides the educational breadth and depth necessary to prepare students to perform these important functions in society.

Student candidates for the B.S. degree in Chemical Engineering are prepared for satisfying and challenging careers involving design, operation, and improvement of chemical processes, materials, and products in the chemical and related industries. A chemical engineering education is excellent training for a professional career leading to management. The broad educational background also prepares students for careers in other areas; chemical engineers are active in improving the environment, planning for utilization of resources, food production, health services, and systems analysis. Chemical engineering training provides a unique background for solving problems, especially those involving physical and/or chemical changes in materials.

The curriculum provides a broad background in the fundamentals of science and engineering. Opportunities are afforded for application of these fundamentals to typical chemical engineering problems to illustrate how comprehensive problems are analyzed and solved. The curriculum also provides the student with an opportunity to select a specialized area and develop skills needed to work more effectively in that area. A background in the humanities and social sciences is provided so that the graduate can understand our society and make decisions that contribute to its development and improvement.

The study of chemistry, physics, and mathematics, that are the foundations of engineering, begins in the first year of the chemical engineering curriculum. Courses in organic and physical chemistry provide the extensive knowledge of chemistry required in the education of chemical engineers and in the practice of chemical engineering. A basic knowledge of electricity and mechanics is also essential and is provided by courses in the appropriate departments. Applications-oriented chemical engineering topics courses begin during the first year so that students may gain an early understanding of the significance of their major field.

Students are assisted by faculty counselors in developing an elective program in the humanities and social sciences to satisfy their individual interests within the general college and University General Education requirements. In addition, the department requires that the humanities and social studies program contains one nine credit-hour course sequence in a single subject area.

Students must complete at least 9 credit hours of upper level technical electives, exclusive of CHE 493 (CHE Seminar). These can be chosen from 400-level courses within CHE or from courses in any department in science or engineering. A 300-level course may be considered but must be approved by petition to the Advisory

Committee. Highly motivated students may consider electing 500-level courses.

The senior design sequence occurs during the last two semesters of the student's program. It allows the students to develop and demonstrate their engineering design capabilities that have been developed throughout the entire curriculum.

The four-year curriculum leads to the degree of Bachelor of Science in Chemical Engineering, which is fully accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. Although the curriculum provides excellent preparation for an effective professional career, superior students can elect to take additional courses; they are encouraged to do so during the later stages of their program.

PULP AND PAPER TECHNOLOGY PROGRAM

Manufacture of pulp and paper products from wood and other fiber resources is one of the largest industries in the United States and the world. It depends in a major way upon chemical engineering for research, design, and management of a wide range of both organic and inorganic chemical processes in complex and integrated systems.

The Department of Chemical Engineering at the University of Maine pioneered the first program to study pulp and paper engineering in the United States, and continues to provide instruction in the multidisciplinary application of engineering sciences to the varied and complex operations of this forest resources industry. The modern and extensive paper industry of this state provides an exceptional opportunity for cooperative interaction of university-based programs with real life problems of industrial operations and development.

Students with a special interest in this industry, and whose commitment to the full curriculum for the B.S. degree in Chemical Engineering is subordinate to other goals, can elect a four-year educational program leading to the degree of Bachelor of Science in Pulp and Paper Technology. This curriculum is process-engineering oriented. Specialized courses designed for work specifically in this industry are substituted for some of the more general science and engineering courses that are required in chemical engineering.

ADVANCED STUDY IN PULP AND PAPER MANAGEMENT

Students with a B.S. degree can program a fifth-year extension of their undergraduate curriculum to fulfill requirements for a *Certificate in Five-Year Pulp and Paper Management*. One half of the fifth year covers basic fiber science and the engineering technology of pulp and paper production. The other half can be an elective sequence to develop special interests in process engineering, systems engineering, environmental engineering, applied computer sciences, polymer science, process control, plant design, operations economics, engineering management, business administration, and others.

Students at the University of Maine who are enrolled in a B.S.

degree program can undertake an integrated program where the requirements of the fourth year of their basic curriculum and the additional courses of the five-year option are distributed to reinforce each other over the last two years of a five-year program. The B.S. degree and the certificate are awarded concurrently at the end of the fifth year.

Requirements for a *Certificate in Five-Year Pulp and Paper Management* include the successful completion of a minimum of 30 credit hours beyond the B.S. degree requirements. These hours must include the courses: PPA 465, PPA 466, PPA 473, PPA 474, PPA 695 and PPA 696 unless written permission is obtained from the faculty advisor. PPA 499 may be substituted for PPA 473 or PPA 474 but not for both. The remaining credits are to be taken in courses that constitute a minor field and are usually taken from the College of Art and Humanities, the College of Business Administration, the College of Engineering, the College of Sciences, the College of Social and Behavioral Sciences and the College of Natural Resources, Forestry and Agriculture. They are selected to enhance the career preparation of the student. A variety of elective course programs can be developed to meet individual needs of the student in consultation with and with approval of the faculty advisors so that requirements for a *Certificate in Five-Year Pulp and Paper Management* can be completed within one academic year beyond the B.S. degree.

The certificate program may be taken concurrently with some M.S. programs with consent of the academic organizations involved. However the certificate program is a fifth-year extension of studies at the undergraduate level in those courses which are required, and courses taken for this certificate will not satisfy degree requirements for an M.S. program unless prior permission by the student's graduate advisory committee has been obtained.

COOPERATIVE "WORK-EXPERIENCE" PROGRAM OPTION IN CHEMICAL ENGINEERING

Students with satisfactory academic standing at the conclusion of their fourth semester in the B.S. curriculum of chemical engineering or pulp and paper technology may petition for and accept opportunities provided by cooperating companies to undertake the special "Co-op" program. This involves work as a junior chemical engineer for two periods of supervised and paid professional experience. These periods alternate with two regular terms of study over a continuous 15-month period, which normally begins in June of the sophomore year and ends in September immediately before the fall semester of the senior year. While students must register for eight credits for this program, these credits cannot be used as substitutes for courses required in the curriculum for the B.S. degree. These credits are in addition to the minimum required for the B.S. degree. Students in the "Co-op" program can complete their study program to graduate with a B.S. degree at the same time as do other members of their class. Students should consult with the coop coordinator for the Department of Chemical Engineering for additional details.

"Co-op" program positions are awarded on a competitive basis, with the collective consent of the faculty, the selected student, and the industrial "Co-op" employer. Students who complete the requirements of the "Co-op" program are awarded a Certificate of Chemical Engineering Internship together with their B.S. degree.

GRADUATE STUDY IN CHEMICAL ENGINEERING

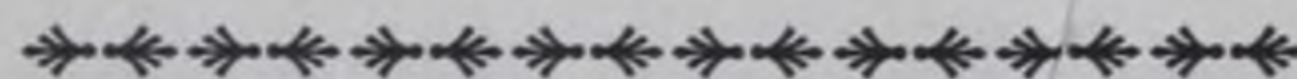
The Department offers M.S. and Ph.D. degree programs. Students with a B.S. in chemical engineering are required to complete 12 semester hours of graduate work, including a thesis, two seminars, and six courses to receive an M.S. in chemical engineering. The Ph.D. degree requires a minimum of 58 semester hours of graduate work beyond the B.S. in Chemical Engineering. These requirements are counted for by a dissertation, four seminars, and eight graduate courses. In addition to completing the course and research requirements, Ph.D. students are required to pass a qualifying examination and a research examination on their plan of dissertation.

Highly qualified and motivated graduates with a B.S. in a discipline other than chemical engineering may be admitted to the M.S. program. They are required to take selected undergraduate chemical engineering courses in addition to the required graduate work.

Details for the requirements for the degree of Master of Science in Chemical Engineering and Doctor of Philosophy in Chemical Engineering are given in the Bulletin of the Graduate School of the University of Maine, and can be obtained from the Graduate School or the Department of Chemical Engineering.

Fellowships and assistantships are available to graduate students.

All undergraduate students must complete 18 credits in the humanities/social sciences in addition to English 101. These must include nine credits in a single area of study and must satisfy the Human Values and Social Context component of the University General Education Requirements. A maximum of three credits in the performing arts may be included in the total. A listing of most courses that may be included in the humanities/social sciences program can be obtained in the College of Engineering office, 101 Barrows Hall. Students may request permission to include courses not on this list.



SUGGESTED CURRICULUM FOR THE B.S. in CHEMICAL ENGINEERING

First Year

First Semester

CHE 111 Introduction to Chemical Engineering	2
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4
Humanities/Social Sciences Elective*	3
TOTAL HOURS	17

Second Semester

CHE 112 Introduction to Chemical Engineering II	2
CHY 132 Applications of Chemistry	3
CHY 134 Applications of Chemistry Laboratory	1
MAT 127 Calculus II	4
PHY 122 Physics for Engineers and Physical Scientists II	4
Humanities/Social Sciences Elective*	3
TOTAL HOURS	17

Sophomore Year

First Semester

CHE 200 Fundamentals of Chemical Engineering	4
CHY 251 Organic Chemistry I	3
CHY 253 Organic Chemistry Laboratory I	2
MAT 228 Calculus III	4
Humanities/Social Sciences Elective	3
TOTAL HOURS	16

Second Semester

CHE 385 Chemical Engineering Thermodynamics I	3
CHY 252 Organic Chemistry II	3
ECE 210 Electrical Networks I	3
MAT 258 Introduction to Differential Equations and Linear Algebra	4
MAT 332 Statistics for Engineers	3
Humanities/Social Sciences Elective	3
TOTAL HOURS	19

*One must be ENG 101 or equivalent.

Junior Year

First Semester

Approved Chemistry Elective	3
CHE 360 Elements of Chemical Engineering I	4
CHE 352 Process Control	3
CHE 385 Chemical Engineering Thermodynamics II	3
MEE 251 Statics and Strength of Materials	3
TOTAL HOURS	16

Second Semester

CHE 362 Elements of Chemical Engineering II	4
CHE 361 Chemical Engineering Laboratory I	2
CHE 368 Kinetics and Reactor Design	3
CHY 372 Physical Chemistry II	4
Technical Elective I	3
TOTAL HOURS	16

Senior Year

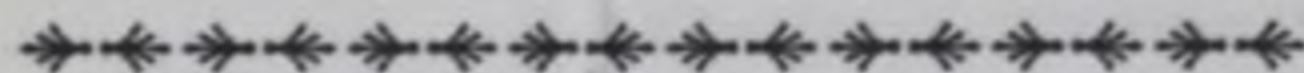
First Semester

CHE 363 Chemical Engineering Laboratory II	3
CHE 478 Computer Aided Process Design	3
CHE 477 Elements of Chemical Process Design	3
CHE 493 Chemical Engineering Seminar	0
Technical Elective II	3
Humanities/Social Sciences Elective	3
TOTAL HOURS	15

Second Semester

CHE 479 Process Design Projects	4
CHE 493 Chemical Engineering Seminar	1
Technical Elective III	3
Humanities/Social Sciences Elective	3
Humanities/Social Sciences Elective	3
TOTAL HOURS	14

TOTAL CREDITS REQUIRED: 130



SUGGESTED CURRICULUM FOR
THE B.S. IN PULP AND PAPER TECHNOLOGY

First Year

First Semester

CHE 111 Introduction to Chemical Engineering	2
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4
Humanities/Social Sciences Elective (1)	3
TOTAL HOURS	17

Second Semester

CHE 112 Introduction to Chemical Engineering II	2
CHY 132 Applications of Chemistry	3
CHY 134 Applications of Chemistry Laboratory	1
MAT 127 Calculus II	4
PHY 122 Physics for Engineers and Physical Sciences II	4
Humanities/Social Sciences Elective (1)	3
TOTAL HOURS	17

Sophomore Year

First Semester

CHE 200 Fundamentals of Chemical Engineering	4
CHY 251 Organic Chemistry I	3
CHY 253 Organic Chemistry Laboratory I	2
MAT 228 Calculus III	4
MEE 230 Thermodynamics I (2)	3
TOTAL HOURS	16

Second Semester

CHY 252 Organic Chemistry II	3
ECE 215 Electric Circuit Fundamentals	3
MAT 258 Introduction to Differential Equations and Linear Algebra	4
MAT 332 Statistics for Engineers	3
MEE 231 Thermodynamics II (2)	3
TOTAL HOURS	16

Junior Year

First Semester

BIO 202 The Plant Kingdom	4
CHE 360 Elements of Chemical Engineering I	4
CHY 371 Physical Chemistry I	4
PPA 465 Pulp Technology	3
Humanities/Social Sciences Elective	3
TOTAL HOURS	18

Second Semester

CHE 362 Elements of Chemical Engineering II	4
CHY 483 Introductory Wood Chemistry	3
PPA 466 Paper Technology	3
WSC 416 Wood Anatomy	4
Humanities/Social Sciences Elective	3
TOTAL HOURS	17

Senior Year

First Semester

CHE 477 Elements of Chemical Process Design	3
PPA 473 Pulp Manufacture and Testing	4
Technical Elective	3
MEE 150 Applied Mechanics: Statics	3
Humanities/Social Services Elective	2
TOTAL HOURS	16

Second Semester

MEE 251 Strength of Materials	2
PPA 474 Paper Manufacture and Testing	4
Humanities/Social Sciences Elective	3
Humanities/Social Sciences Elective	3
Technical Elective	2
TOTAL HOURS	16

TOTAL CREDITS REQUIRED: 133

1. One must be ENG 101 or equivalent.
2. CHE 385 and CHE 386 may be substituted for MEE 230 and MEE 231.

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CHEMISTRY

Professor Green (Chairperson)
 Professors Bentley, Dwyer, Fort, Patterson, Rasaiah,
 Associate Professors Amar, A. Bruce, M. Bruce, Cole, Jensen, Russ

The Department of Chemistry offers programs of study leading to the degrees of Bachelor of Arts and Bachelor of Science in Chemistry in the College of Liberal Arts and Sciences.

Because a knowledge of chemistry is fundamental to success in so many fields, the chemistry curriculum affords an unusual opportunity for a wide choice of electives so that the chemistry major may adapt his or her program to individual interests and needs. A brochure describing a number of such individualized programs, such as technical writing, industrial management, computer applications, or medical school preparation, is available in the Department office, 188 Aubert Hall.

A curriculum leading to American Chemical Society certification, such as the specimen below, prepares the student for employment in the chemical industry or for graduate or professional school. The prospective chemistry major should discuss his or her educational goals with the department chairperson as early as possible, so as to incorporate requisite courses at their appropriate places in the curriculum.

In addition to the courses in the curriculum below, B.A. students will need to complete a set of social science and humanities electives specified by the Faculty Assembly and B.S. candidates will satisfy requirements as specified by the College of Liberal Arts and Sciences.

COOPERATIVE WORK EXPERIENCE

A program is available which allows students to accept opportunities for temporary employment provided by cooperating industries. The student may work during the summer or part of one summer and either the following or immediately preceding semester. Credit will be allowed for this work under course numbers CHY 394 and CHY 594. This will be a supervised and paid professional experience.

FIVE-YEAR COMBINED B.S.—M.S. PROGRAM

Selected students may apply for this option, which permits completion of both the B.S. and the M.S. degrees in five years. Work completed as part of the Honors Program may be included. Application should be made by letter to the department early in the junior year.

GRADUATE WORK IN CHEMISTRY

The Department of Chemistry offers a program of study and research leading to the M.S. and Ph.D. degrees. The general requirements of these programs are described in the Graduate School catalog.

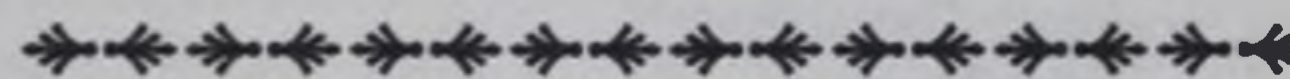
HEALTH PROFESSIONS

A chemistry major is strong preparation for further study in medicine and other health related fields. Useful elective courses would include biochemistry, comparative anatomy, animal physiology, genetics, and other courses in the biological sciences.

CHEMISTRY MAJOR REQUIREMENTS

The chemistry major must take a minimum of 43 credit hours of chemistry courses: CHY 121/123; CHY 122/124; CHY 242; CHY 51/252; CHY 253/254; CHY 371/372; CHY 374; CHY 461/462; either

CHY 443 or CHY 453; and CHY 393 three times. Undergraduate Research (CHY 398)(2 hrs) is also required for chemistry majors together with Undergraduate Thesis (CHY 399)(1 hr). Additional requirements are: 12 credit hours of mathematics: MAT 126, MAT 127 and MAT 228; eight credit hours of physics: PHY 111/112, or PHY 121/122; three credit hours of speech communication: COM 103; a college composition course: ENG 101 or equivalent; a literature course: (ENG 122 or ENG 123 is recommended); a course in computer programming. At least one year of study of a major foreign language (French, German, or Russian) is strongly recommended if the student plans to enter graduate school. Transfer students must take 14 hours of upperclass Chemistry at UMaine.



SUGGESTED CURRICULUM

Courses are arranged in the recommended sequence. See departmental advisors for variations.

First Year

Fall Semester

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
ENG 101 College Composition	3
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4
SCS 100 Majoring in the Sciences	1
TOTAL HOURS	16

Spring Semester

CHY 122 The Molecular Basis of Chemical Change	3
CHY 124 The Molecular Basis of Chemical Change Laboratory	1
COS 2xx Introduction to Computing (Any Language)	3
MAT 127 Calculus II	
PHY 122 Physics for Engineers and Physical Scientists II	4
TOTAL HOURS	15

Sophomore Year

Fall Semester

CHY 251 Organic Chemistry I	3
CHY 253 Organic Chemistry Laboratory I	2
CHY 242 Principles of Quantitative Analysis and Solution Equilibria	5
MAT 228 Calculus III	4
Elective	3
TOTAL HOURS	17

Spring Semester

CHY 252 Organic Chemistry II	3
CHY 254 Organic Chemistry Laboratory II	2
CHY 393 Undergraduate Seminar in Chemistry	1
COM 103 Fundamentals of Public Communication	3
MAT 258 Introduction to Differential Equations with Linear Algebra	4
Elective	3
TOTAL HOURS	16

CIVIL AND ENVIRONMENTAL ENGINEERING

Professor Brutsaert (Chairperson)
Professors Dagher, Humphrey, Pearce
Associate Professors Garder, Katz, Nazmy, Sandford
Assistant Professors Landis, Weathers
Faculty Associates Wardwell, Woodard

UNDERGRADUATE PROGRAMS

The Civil and Environmental Engineering Department offers a four-year undergraduate program leading to the bachelor of science degree in civil engineering.

Civil engineers are primarily responsible for planning, designing, and constructing facilities to serve society. They design and construct highways and railroads, bridges and tunnels, airports and harbors, hydroelectric dams and power plants, irrigation and flood control projects, and the foundations and frames of buildings.

Environmental engineers plan and design water purification plants, pollution control facilities, and other environmental protection projects.

An engineer may specialize in one of these areas and may further specialize in a particular function, such as design or management.

The civil engineering faculty is dedicated to providing a high quality education that will prepare individuals to become professional civil engineers. Many career paths are open to the civil engineer and the goal of the undergraduate program is to ensure that graduates are prepared to achieve success in their chosen careers. Consequently, the curriculum provides a broad-based program stressing the fundamentals common to the many branches of civil engineering. This curriculum is designed to provide the student with a well-founded civil engineering education while allowing the student the option of selecting electives in one or more disciplines such as environmental, geotechnical, structures, transportation, water resources and construction. Student wishing to develop an indepth expertise in a subdiscipline are encouraged to do so in the graduate program, usually through the one-year Master of Science Engineering, (non-thesis option).

Engineering design is introduced in the student's first semester, developed in required and elective courses, and culminates in the required "capstone" design course, CIE 411 Engineering Project Design. The practical application of fundamental engineering principles are built through a deliberate integration of laboratory experiences with classroom instruction. Critical thinking skills, technical writing ability, and oral communication skills receive emphasis, along with team participation, so that graduates are prepared for leadership roles in their careers.

Course work also is provided in the humanities and social sciences to give the student a broader view of cultural, political, and economic aspects of society and their relationship to engineering. The understanding of humanistic and societal factors is essential in developing the engineering skills needed to solve today's and tomorrow's problems. The program has been carefully designed to facilitate the meeting of all general education requirements of the University.

The Department has a number of scholarships available for students majoring in civil engineering. Outstanding incoming students should apply for PaCesetter Scholarships directly through the Department.

The program is fully accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC-ABET).

ACADEMIC STANDARDS

In addition to meeting all University academic requirements, a civil engineering student must adhere to the following conditions:

1. Only one D grade (D, D, or D*) is allowed in the nine basic science/mathematics courses. (CHY 121, 132; MAT 126, 127, 228, 258, 332; PHY 121 and 122). If a second D grade is earned, then one of the two courses must be retaken the next time the course is offered.
2. Only one D grade (D, D, or D*) is allowed in all CIE courses, statics, strength of materials and the technical elective.
3. Courses numbered 500-599 are graduate courses which may only be taken by undergraduate students who have achieved a superior academic record in their undergraduate courses and have received permission of the course instructor and their academic advisor.
4. Students with a 3.0 or better at the end of their junior year are encouraged to begin taking graduate level courses that will count toward a Master's degree.

GRADUATE PROGRAMS

The Department of Civil and Environmental Engineering offers programs of study and research leading to the Master of Science (thesis), Master of Science (non-thesis) and Doctor of Philosophy degrees in Civil Engineering. Students with a B.S. in Civil Engineering are required to complete 30 semester hours of graduate work to obtain the M.S. degree. For the M.S. degree (thesis), the 30 credit hours include 24 course credits and six credits for the thesis. In the M.S. non-thesis program the student must complete 30 course credit hours. The non-thesis M.S. program can generally be completed in one year. The Ph.D. requires additional course work and dissertation beyond the M.S.

The graduate program is designed to allow students to obtain specialized training that expands the knowledge gained at the undergraduate level. Specialized areas of study include: Environmental and Water Resources Engineering, Geotechnical Engineering, and Structural Engineering and Mechanics.

Descriptions of the programs and general requirements for advanced degrees are given in the Graduate School catalog. Teaching assistantships and research assistantships are available through the Department for qualified applicants enrolled in the M.S. and Ph.D. programs. Students eligible for financial aid are encouraged to apply for Sleeper-Sawyer scholarships, which are available to students entering the Master of Science programs.

DISTRIBUTION OF ENGINEERING DESIGN AND SCIENCE CREDITS

Course	Engineering Design	Engineering Science
CIE 424	2	1
CIE 425	1	2
CIE 426	3	0
CIE 431	3	1
CIE 432	4	0
CIE 440	0	4
CIE 442	4	0
CIE 443	4	0

Course	Engineering Design	Engineering Science
CIE 450	1	2
CIE 455	1	2
CIE 456	1	2
CIE 460	3	0
CIE 470	1.5	1.5
CIE 533	0	3
CIE 534	0	3
CIE 535	0	3
CIE 536	1	2
CIE 539	1	2
CIE 540	0	3
CIE 541	0	3
CIE 542	3	0
CIE 544	4	0
CIE 545	0	3
CIE 546	0	3
CIE 547	3	0
CIE 548	3	0
CIE 556	1	2
CIE 558	2	1
CIE 559	0	3
CIE 562	3	0
CIE 563	1	1
CIE 564	3	0
CIE 565	3	0
CIE 566	3	0
CIE 567	3	0



SUGGESTED CURRICULUM FOR THE B.S. in CIVIL ENGINEERING

First Year

First Semester

CIE 110 Materials	3
CIE 111 Materials Laboratory	1
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
ENG 101 College Composition	3
MAT 126 Calculus I	4
TOTAL HOURS	15

Second Semester

CHY 132 Applications of Chemistry	3
CHY 134 Applications of Chemistry Laboratory	1
CIE 115 Computers for Civil Engineering	3
GEE 101 Introduction to Engineering Design I	3
MAT 127 Calculus II	4
HVSC Elective (1)*	3
TOTAL HOURS	17

Sophomore Year

First Semester

CIE 231 Fundamentals of Environmental Engineering(2)	3
MAT 228 Calculus III	4
MEE 150 Applied Mechanics: Statics	3
PHY 121 Physics for Engineers and Physical Scientists I	4
HVSC Elective (1)*	3
TOTAL HOURS	17

*Elective courses are used to meet part of the EAC-ABET accreditation requirements and the University General Education requirements. Students are assisted by faculty advisors in developing an elective program to meet the accreditation and general education requirements within a program that fulfills and the student's individual needs.

Second Semester

CIE 250 Hydraulics	3
CIE 251 Hydraulics Laboratory	1
MEE 251 Strength of Materials	3
MAT 258 Introduction to Differential Equations and Linear Algebra	4
PHY 122 Physics for Engineers and Physical Scientists II	4
TOTAL HOURS	15

Junior Year

First Semester

CIE 325 Transportation Engineering	3
CIE 340 Introduction to Structural Analysis	4
COM 103 Fundamentals of Public Communication	3
SIE 211 Surveying	4
HVSC Elective (1)	3
TOTAL HOURS	17

Second Semester

CIE 365 Soil Mechanics	3
CIE 366 Soil Mechanics Laboratory (2)	1
ENG 317 Business and Technical Writing	3
MAT 332 Statistics for Engineers	3
Civil Engineering/Technical Elective (3)	3
HVSC Elective (1)	3
TOTAL HOURS	16

Senior Year

First Semester

CIE 412 Engineering Decisions	3
Civil Engineering/Technical Elective (3)	3
Civil Engineering/Technical Elective (3)	3
Engineering Science Elective (4)	3
Ethics (1)	3
TOTAL HOURS	15

Second Semester

CIE 411 Engineering Project Design	3
Civil Engineering/Technical Elective (3)	3
Civil Engineering/Technical Elective (3)	3
HVSC Elective (1)	3
TOTAL HOURS	12

TOTAL CREDITS REQUIRED: 124

Notes:

1. Human Values and Social Context (HVSC) Electives: Both the accreditation and general education standards require the student to take a series of courses in the humanities and social sciences (required courses are used to meet the other general education requirements at the University of Maine). A total of 18 credit hours must be taken in the HVSC category. Five areas (Western Cultural Tradition, Social Contexts and Institutions, Cultural Diversity and International Perspectives, Population and Environment, and Artistic and Creative Expression) must be included, although a single course can be applied to more than one area. The required public speaking course, COM 103, can be used to satisfy the Social Contexts and Institutions area. In addition, a course or series of course placing substantial emphasis on ethical issues must be completed. NOTE: Although listed as satisfying HVSC requirements, AES 105, AES 225, ART 100, ART 110, ART 120, BIO 213, COM 360, EDB 202, ESC 426, ESS 315, and WLE 230 cannot be used to satisfy general education requirements in the College of Engineering due to accreditation guidelines. A list of acceptable HVSC electives is available in the Department office, 105 Boardman Hall.

2. Writing Intensive Courses:

CIE 331 and CIE 366 are designated as writing intensive courses for civil engineering majors. In addition CIE 366 and ENG 317 are designed to be taken concurrently. ENG 317 meets the writing intensive course "outside the major."

3. Civil Engineering and Technical Electives:

A minimum of 15 credit hours of civil engineering and technical electives are required for graduation. This requirement can be met by five three-credit courses or three four-credit courses and one three-credit course. Civil engineering electives are advanced (400 or 500 level) civil engineering courses. Up to four credits of this requirement may be a technical elective, which is defined as an advanced civil engineering course or CIE 294 - Civil Engineering Practice or other advanced-level engineering, science, or mathematics course. In addition, either GES 106 - Geology for Engineers or BIO 100 - Basic Biology can be taken as the technical elective.

Within the 15 credit hours of civil engineering and technical electives, at least eight credit hours must be in design. In selecting a civil engineering and technical elective, it is *strongly* recommended that students take a second course in three of the four areas (environmental, geotechnical, structures, transportation/construction) to ensure the breadth required by most civil engineering careers. The engineering design and engineering science content of each civil engineering elective is given in the course description.

4. Engineering Science Electives:

Three credits of approved engineering science electives, usually in mechanical or electrical engineering, are required. Typical courses taken are: MEE 230 - Thermodynamics; MEE 270 - Dynamics; ECE 172 - Logic Systems; ECE 215 - Electric Circuit Fundamentals. Civil Engineering courses cannot be used for this three credit hour requirement.

COMMUNICATION DISORDERS

Professor Oller (Chairperson)

Professor Pickering

Assistant Professors Hall, Walker

Lecturer/Staff Speech-Language Pathologists Camp, Orr, Riley, Stickle

The undergraduate program in Communication Disorders equips majors with pre-professional competencies that should enable them to undertake master's study recommended for entrance to the professions of speech-language pathology or audiology. The Master's program is accredited by the American Speech-Language-Hearing Association (ASHA). Students must meet the following special entrance requirements: an overall G.P.A. of at least 2.5 with a transcript, an essay explaining the student's rationale for choosing Communication Disorders, and a statement of future professional goals. All materials are due before March 15 of the academic year preceding desired entrance to the program. Rationale and application materials are available at the Conley Speech and Hearing Center, North Stevens Hall. Special provisions are made for transfer students.

REQUIREMENTS FOR MAJORS

Majors must complete three hours in mathematics or statistics, three hours in the biological/physical sciences, six hours in the behavioral and/or social sciences, fifteen hours in basic normal communication processes and nine hours in non-departmental cognate areas including PSY 100. A list of acceptable courses is available from the Department. Students taking department courses to satisfy requirements within the Communication Disorders major must have a C (2.0) or better in each course.

Students also are required to complete nine semester credit hours in the following areas (at least one course in two of the three areas):

1. Statistics and computer science,
2. Writing, and
3. Language and critical thinking.

These nine hours help students develop useful tools for studying communication behaviors. A list of specific courses that may

be used to satisfy this requirement is available at the Conley Speech and Hearing Center, North Stevens Hall.

All students in Communication Disorders are expected to take advantage of the laboratory and service opportunities provided through the Conley Speech and Hearing Center. The Center provides training opportunities for those preparing for careers as speech-language clinicians and provides services for persons who are speech language, or hearing impaired.

REQUIRED COURSES FOR STUDENTS IN COMMUNICATION DISORDERS PROGRAM

CDS 130 Introduction to Communication Disorders
CDS 388 Hearing and Deaf Studies
CDS 480 Language Development
CDS 481 Phonological Development and Phonetics
CDS 483 Anatomy and Physiology of the Speech Mechanism
CDS 484 Introduction to Speech Science
CDS 486 Clinical Practicum (2 courses)
CDS 487 Organic Speech Disorders
INT 410 Introduction to Linguistics
PSY 100 General Psychology

The courses meeting the 15 hours in basic human communication processes are CDS 480, CDS 481, CDS 483, CDS 484, INT 410.

The undergraduate has the background which can lead to the advanced study necessary in the attainment of Professional Certification in the State of Maine and/or the Certificate of Clinical Competency which is awarded by the American Speech and Hearing Association.

COMMUNICATION AND JOURNALISM

Associate Professor Peterson (Chairperson)
Professor Langellier
Associate Professors Grosswiler, Olmstead, Sherblom
Assistant Professors Gula, Sullivan

The Department's mission is to achieve excellence in communication and journalism teaching, research, and service. Through the study of communication and journalism we seek to understand and improve the human condition. The Department fulfills this liberal arts mission through undergraduate and graduate degree programs in Communication, Journalism, and Mass Communication.

The Department of Communication and Journalism offers three B.A. degrees: a B.A. in Communication, a B.A. in Journalism, and a B.A. in Mass Communication. A student must satisfy the degree requirements for *ONE* of these majors as well as the degree requirements for the College of Liberal Arts and Sciences and for the University.

The Department offers a Master of Arts degree in Communication. Further details may be found in the Graduate School Catalog.

B.A. IN COMMUNICATION

The Communication program is designed to expand the student's awareness and understanding of the genesis, development, functions, roles, and uses of communication. The undergraduate program in Communication prepares majors in the theory, research, and pragmatics of communication between persons, whether the communicating occurs within one-to-one, small group, organizational, or public contexts.

GENERAL REQUIREMENTS FOR MAJORS IN COMMUNICATION

All department majors in Communication must complete a minimum of thirty six (36) hours in Communication courses and a total of nine hours in the areas of Statistics and Computer Science, Writing, or Language and Critical Thinking (list of acceptable courses available in 420 Dunn). The nine credits must come from two of the three areas with at least three credits in each of the two areas elected. Students taking department courses to satisfy requirements within the Communication major must have a C (2.0) or better in each course.

COMMUNICATION REQUIREMENTS

In the Communication program, students develop a broad understanding of communication and how people communicate in a variety of contexts. Students are encouraged to explore the diversity of perspectives on communication and to concentrate on areas of interest. They examine the aesthetic, interpersonal, political, professional, technological, rhetorical, and socio-cultural dimensions of communication in order to prepare themselves for careers that emphasize communication.

Communication majors are required to complete a minimum of 36 credit hours from the following two areas:

1. Each of the following core courses is required (9 credit hours)
 - a. COM 201 Communication Studies I
 - b. COM 202 Communication Studies II
 - c. EITHER COM 401 Rhetorical Criticism OR COM 402 Communication Research

2. At least 27 credit hours from the following courses, 12 credit hours of which must be at the 400 level:

COM 102 OR 103 OR 106 OR 257 (Two courses may be used toward this requirement)

COM 267 Public Relations: Oral Communication Strategies

COM 324 Interpersonal Communication in Everyday Life

COM 345 Small Group Communication

COM 347 Argument and Critical Thinking

COM 356 Speech Play and Performance

COM 360 Nonverbal Communication

COM 401 or 402 (If not used to meet a core requirement)

COM 403 Persuasion and Social Influence

COM 405 Women and Communication

COM 410 Social Influence of Mass Communication

COM 420 Health Communication

COM 444 Political Rhetoric

COM 450 Communication and Technology

COM 466 Narrative and Communication

COM 470 Communication in Organizations

COM 493 Topics in Communication

3. Electives: Students *MAY* take additional credits in department courses beyond the requirements for a major. In addition to the courses listed above, students may select:

COM 496 Field Experience in Communication

COM 497 Problems in Communication

B.A. IN JOURNALISM AND B.A. IN MASS COMMUNICATION

The program has a solid tradition of preparing students for leadership roles in news, advertising and other mass media careers in Maine and nationwide. The Journalism and the Mass Communication majors offer students strong oral and written expression skills, a firm grasp of public affairs and a broad foundation in the liberal arts regardless of students' ultimate career plans. The majors also prepare students for graduate studies in related communication fields, law, the humanities and the social sciences. Full-time faculty members are established scholars who draw on extensive media experience and ongoing contacts with media organizations. Part-time faculty take time out from careers in news and advertising to share their state-of-the-art knowledge with students.

The program maintains productive relations with media enterprises in the state and beyond, and faculty support the development of scholastic journalism and mass communication studies in Maine primary and secondary schools.

CAREER OPPORTUNITIES

Modern mass communication is the "nervous system" of society, and this reality is reflected by the demand for media practitioners in business, government, education and other fields. Graduates are recruited by media organizations in Maine and elsewhere, and the program routinely receives inquiries from prospective employers. An active internship program encourages students to become acquainted with media organizations and thus have demonstrable work experience, professional contacts and an understanding of the industries before they enter the job market.

ADMISSION

First and second-year students are encouraged to sample introductory courses and get involved with student organizations associated with the major to explore the field and decide if they want to pursue a Journalism or Mass Communication degree.

These majors are limited-admission programs. Prospective majors must apply for admission, and approval is based on past academic performance. Acceptance is not guaranteed and may be limited by available academic resources. Intended majors should consult the department well in advance, to assist them in meeting admissions criteria. Basic requirements to declare a Journalism or Mass Communication major are:

1. Completion of at least 53 credits of undergraduate coursework.
2. Completion of JMC 100, JMC 211, and JMC 236 with a combined average in all three courses of no less than 2.33 "C plus" and no grade lower than a "C minus" in any one of the three.
3. An overall grade point average of at least 2.0.

In exceptional circumstances, the faculty will entertain formal requests for waiver of the above requirements (the 53-credit requirement is not waivable).

Prospective majors are expected to have basic typing skills.

GENERAL SKILLS AND EDUCATION REQUIREMENTS

The program emphasizes a broad liberal arts curriculum. In keeping with national accreditation standards, students are required to complete approximately 75% of degree coursework outside the major including the following curriculum of general education and skills courses.

Foundation Courses

History: 6 credits

Required: One of the following sequences:

HTY 103/104 United States History

HTY 105/106 History of European Civilization

HTY 107/108 East Asian Civilization

Behavioral Science: 6 credits

Required:

PSY 100 General Psychology

and one of the following:

SOC 101 Introduction to Sociology

ANT 101 Introduction to Anthropology

ANT 102 Introduction to Anthropology II

Political Science: 6 credits

Required:

POS 100 American Government

Plus one other POS course

Economics: 3 credits

Required:

ECO 120 Principles of Microeconomics (or)

ECO 121 Principles of Macroeconomics (or)

INT 105 Environmental Policy (or)

INT 110 Modern Economic Problems

Arts and Humanities: 12 credits

Required:

A total of 12 credits in literature and philosophy with a minimum of three credits in each subject.

Statistics: 3 credits

Required: 3 credits from the approved "statistics" courses listed in the university's General Education Requirements.

Computer Skills: 3 credits

Required:

COS 100 Introduction to Personal Computers

OR

COS 110 Introduction to Personal Computers-MacIntosh
OR

Another COS course with departmental permission

Communication: 3 credits

Required: ONE of the following

COM 102 Fundamentals of Interpersonal Communication

COM 103 Fundamentals of Public Communication

COM 106 Oral Communication of Literature

Cultural Diversity and International Perspective: 6 credits

Required: 6 credits from the approved "cultural diversity and international perspective" courses listed in the university's General Education Requirements.

PROFESSIONAL COURSE REQUIREMENTS

To satisfy the requirements for the bachelor of arts degree, students must complete a minimum of 39 credits of JMC courses.

Students are encouraged to consider a second major or a minor.

For students transferring equivalent courses from other colleges, a minimum of 24 credits of JMC courses must be taken for the degree, regardless of the number of equivalent courses accepted in transfer. The faculty will determine equivalency (if any) of transfer courses in the discipline.

Some JMC courses require the completion of one or more prerequisite courses.

A grade of "C-" or better is required in all JMC courses submitted to satisfy departmental requirements for the major. A passing grade is required in all departmental "Foundation Courses."

Core requirements

(For all Journalism and Mass Communication majors.)

JMC 100 Introduction to Mass Communication

JMC 211 History of Mass Communication

JMC 236 Writing for the Mass Media

JMC 375 Mass Media Law and Regulations

JMC 489 Seminar: Media Ethics and Issues

Advertising Focus: Recommended Courses

JMC 250 Introduction to Advertising

JMC 355 Advertising Copy and Graphics I

JMC 356 Advertising Media

JMC 358 Advertising Copy and Graphics II

JMC 459 Advertising Campaigns

Plus 9 credits of JMC electives

News Editorial Focus: Recommended Courses

JMC 237 Newswriting and Reporting

JMC 330 Copy Editing

JMC 332 Public Affairs Reporting

JMC 434 Editorial and Opinion Writing

JMC 435 Feature Writing

Plus 9 credits of JMC electives

MASS COMMUNICATION DEGREE REQUIREMENTS

The B.A. in Mass Communication is designed for students seeking greater flexibility in designing an academic program in this field to include students who may not be planning careers as media practitioners but who are interested in the academic study of mass communication in society. The B.A. in Mass Communication requires the 15 credit JMC core, plus 24 additional graded JMC credits (18 of which must be in 300-level and above).

INTERNSHIPS

Professional internships for academic credit may be pursued year round. Some opportunities are on campus, while others can be found with print and broadcast media and agencies in the greater Bangor area. Some students pursue internships farther from campus during vacations. Internships may be paid or unpaid, but formal written prior approval and registration must be completed for academic credit to be granted. Because internship students represent the department off-campus, only JMC majors with a 2.5 grade point average in JMC courses will be approved. All internships (JMC 495) are graded pass-fail.

FACILITIES

Newswriting and editing courses are taught in a personal computer lab. A student-operated FM radio station, WMEB, gives students hands-on experience in planning and producing radio news and entertainment.

Students may also gain realistic experience on the staff of the *The Maine Campus*, a Monday-Wednesday-Friday student newspaper that serves the University community. Positions are available in reporting, editing, advertising sales, production and business management.

Media-related student organizations include chapters of the Society of Professional Journalists and the American Advertising Federation.

The department also houses the headquarters of the Maine Press Association and the Maine Center for Student Journalism.

COMPUTER SCIENCE

Associate Professor Byther (Chairperson)
Professor Markowsky
Associate Professors Dube, Fastook, Ferguson, Latour
Assistant Professors E. Turner, R. Turner
Instructors Meadow, Roberts

The Department of Computer Science offers programs of study leading to the Bachelor of Arts in Computer Science and the Bachelor of Science in Computer Science.

Both programs prepare students to become effective computer professionals. Upon graduation the student is ready for an entry level position in industry and for graduate study.

The required course work in computer science provides the student with an understanding of the basic areas of computer science: structure of programming languages, operating systems, systems analysis/software engineering, algorithms and data structures, computer architecture, and the theory of computer science.

Minimum hours for graduation: 120 degree hours. Required GPA: 2.00. Required Major GPA: 2.00. At least 18 hours of computer science courses numbered 300 or above must be Orono courses. All students must satisfy the general education requirements of both the College of Liberal Arts and Sciences and University. A University of Maine student who wishes to take a course elsewhere for the degree must have the course *approved in advance* by the department and the college.

The Bachelor of Arts degree requires the completion of an approved minor. Students are expected to choose their minor in order to provide an indepth introduction to an important application area for computer science so the student can deal with and understand professionals in that area. The minors help prepare students for work or graduate school, and are a key component of the program.

The Bachelor of Science degree complements the Bachelor of Arts in Computer Science degree, it requires its recipients to demonstrate more scientific and technical expertise but allows the student more freedom in meeting the general education requirements. A brief comparison of the requirements for the two degrees is at the end of the B.S. degree requirements.

FIELD EXPERIENCE OPTIONS

Students interested in field experience normally apply for consideration while enrolled in COS 301. Before final acceptance and placement, a student would be expected to complete COS 301, 331, and COS 315 with at least a grade of "C" in each of these courses. Applicants will be screened by a committee within the department and students will be chosen for field experience that suit their credentials. Students who successfully complete field experience will have the location of their field experience noted on their transcript.

DEGREE REQUIREMENTS FOR B.A. in COMPUTER SCIENCE

Students must complete course work in computer science and course work in an approved minor. The courses submitted to meet the requirements for the minor must include at least 18 hours of courses outside of Computer Science. Students completing a second or double major are not required to complete a minor. All students must satisfy the general requirements of University and the requirements of the B.A. degree. All required courses must be taken for a grade; courses taken PASS/FAIL will not count.

REQUIRED COURSES FOR THE B.A. IN COMPUTER SCIENCE

At least 37 hours required.

COS 203 Programming in COBOL

OR

COS 204 Programming in FORTRAN

COS 220 Introduction to Computer Science I *

COS 221 Introduction to Computer Science II *

COS 230 Computer Architecture and Assembly Language

COS 250 Discrete Structures

COS 301 Programming Languages

COS 315 Introduction to Software Engineering

COS 331 Operating Systems

COS 350 Data Structures and Algorithms

AND

(Four courses from COS 398, COS 4xx and COS 5xx).

Required Fundamental Courses

MAT 215 Introduction to Statistics for Business and Economics
OR

MAT 434 Introduction to Statistics

COM 103 Fundamentals of Public Communication

ECO 120 Principles of Microeconomics

ECO 121 Principles of Macroeconomics

MAT 126 Calculus I *

MAT 127 Calculus II *

OR

MAT 115 Applied Mathematics for Business and Economics *

ENG 101 College Composition *

ENG 317 Business and Technical Writing (Junior-year English Proficiency) *

DEGREE REQUIREMENTS FOR B.S. in COMPUTER SCIENCE

The B.S. Computer Science Program is accredited by the Computer Science Accreditation Commission (CSAS) of the Computing Sciences Accreditation Board (CSAB), a specialized accrediting body recognized by the Commission on Recognition of Postsecondary Accreditation (CORPA).

This degree complements the B.A. in Computer Science degree with a degree which requires its recipients to demonstrate more scientific and technical expertise while allowing the student more freedom in meeting general education requirements. **All requirements of the College of Liberal Arts and Sciences must be met.**

Required Computer Science Courses - 43 hours

COS 220 Introduction to Computer Sciences I *

COS 221 Introduction to Computer Science II *

COS 230 Computer Architecture and Assembly Languages

COS 250 Discrete Structures

COS 301 Programming Languages

* A student must complete these courses with a grade of "C" or better each; a grade of "C-" is not sufficient.

COS 301 Programming Languages	3
COS 315 Introduction to Software Engineering	3
COS 204 Programming in FORTRAN	1
COS 331 Operating Systems	3
COS 335 Computer Organization and Architecture	3
COS 350 Data Structures and Algorithms	3
COS 490 Computers and Society	3
COS xxx Elective courses	12
(Four courses from COS 398, COS 4xx, and COS 5xx.)	

Required Mathematics Courses - 19 hours

MAT 126 Calculus I *	4
MAT 127 Calculus II *	4
MAT 228 Calculus III *	4
MAT 262 Linear Algebra	3
MAT 434 Introduction to Statistics	4

Other Required courses - 24 hours

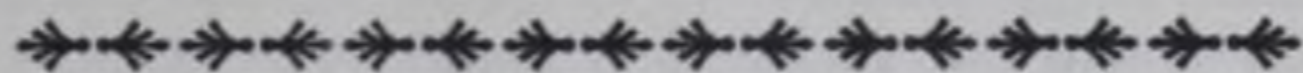
ECE 172 Logic Systems	4
One of the following ECE courses	
ECE 471 Microprocessor Application Engineering	3
ECE 475 Sequential Logic Systems	3
ECE 477 Hardware Applications Using C	3
COM 103 Fundamentals of Public Communication	3
ENG 101 College Composition *	3
ENG 317 Business and Technical Writing *	3
PHY 121 Physics for Engineering and Physics Scientists I	4
PHY 122 Physics for Engineering and Physics Scientists II	4

Requirements on Electives

A total of 24 additional hours of electives must be chosen from the (broadly construed) areas of the Arts, Humanities, and Social Sciences. The University requires 18 of these hours be in the area of Human Values and Social Context with six specific sub-categories defined. List of courses meeting this requirement are available from your advisor.

The above requirements are overlapping and courses may be chosen to satisfy several requirements at once.

Two additional courses (6-8 credits) emphasizing quantitative methods must be taken. Current courses meeting this requirement are: AST 109 and AST 110, AST 215, AST 216, BMB 207, BMB 208, BIO 100, BIO 204, BIO 208, BIO 280, BIO 201, BIO 202, CHY 121 and CHY 123, CHY 132 and CHY 124/134, GES 101, GES 102, GES 103, GES 140, GES 314, PHY 236 and PHY 229, PHY 238 and PHY 230, PHY 4xx, SMS 370.



SUGGESTED CURRICULUM B.A. in COMPUTER SCIENCE

COS 100 is recommended for students not familiar with personal computers. Students with little experience programming should take COS 120. Credit does not apply to the major.

First Year

First Semester

ECO 120 Principles of Microeconomics	3
MAT 126 Calculus I	4
ENG 101 College Composition	3
OR	
COM 103 Fundamentals of Public Communications	3
Electives	6
SCS 100 Majoring in the Sciences	1

TOTAL HOURS 17

Second Semester

COS 220 Introduct	ices I	3
ECO 121 Principle		3
MAT 127 Calculus		4
OR		
MAT 115 Applied	ness and Economics	3
ENG 101 College C		3
OR		
COM 103 Fundam	unication	3
Elective		3
		<u>15-16</u>

First Semester

COS 221 Introduct	ice	3
Minor/Electives		12
		<u>15</u>

Second Semester

COS 250 Discrete		3
COS 230 Compute	sembly Languages	3
MAT 215 Introduc	usiness and Economics	3
OR		
MAT 434 Introduc		4
Minor/Electives		6
		<u>15-16</u>

First Semester

COS 301 Programu		3
COS 331 Operatin		3
Minor/Electives		9
		<u>15</u>

Second Semester

COS 203 Programu		1
COS 315 Introduc	earing	3
OR		
COS 204 Programu		1
COS 350 Data Stru		3
Electives		9
		<u>16</u>

First Semester

COS Electives		6
Minor/Electives		9
		<u>15</u>

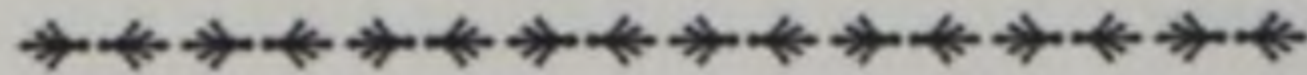
Second Semester

COS Electives		6
Electives		9
		<u>15</u>

TOTA

D: 122-124

Students should complete their minor, meet the University general education requirements, and meet the distribution requirements for the B.A. degree. These requirements are overlapping and a single course may meet more than one requirement.



SUGGESTED CURRICULUM B.S. in COMPUTER SCIENCE

This schedule illustrates one way of meeting the degree requirements within four years.

COS 100 is recommended for students not familiar with personal computers. Students with little experience programming should take COS 120. Credit does not apply to the major.

First Year

First Semester

COS 220 Introduction to Computer Science I	3
ENG 101 College Composition	3
OR	
COM 103 Fundamentals of Public Communication	3
MAT 126 Calculus I	4
PHY 121 General Physics I	4
SCS 100 Majoring in the Sciences	1
TOTAL HOURS	15

Second Semester

COS 221 Introduction to Computer Science II	3
ECE 172 Logic Systems	4
MAT 127 Calculus II	4
PHY 122 Physics for Engineering and Physics Scientists II	4
TOTAL HOURS	15

Sophomore Year

First Semester

COS 230 Computer Architecture and Assembly Languages	3
MAT 228 Calculus III	4
Electives	9
TOTAL HOURS	16

Second Semester

COS 250 Discrete Structures	3
COM 103 Fundamentals of Public Communications	3
OR	
ENG 101 College Composition	3
MAT 262 Linear Algebra	3
Electives	6
TOTAL HOURS	15

Junior Year

First Semester

COS 301 Programming Languages	3
COS 331 Operating Systems	3
MAT 434 Introduction to Statistics	4
Science Elective	4
Elective	3
TOTAL HOURS	17

Second Semester

COS 204 Programming in FORTRAN	1
COS 315 Introduction to Software Engineering	3
COS 335 Computer Organization and Architecture	3
COS 350 Data Structures and Algorithms	3
Science Elective	4
TOTAL HOURS	14

Senior Year

First Semester

COS Electives	
ENG 317 Business and Technical Writing	
ECE Elective	
Elective	

TOTAL HOURS

Second Semester

COS 490 Computers and Society	
COS Electives	
Electives	

TOTAL HOURS

TOTAL CREDITS REQUIRED: 122

Sufficient hours must be included to reach the University degree minimum of 120. The electives chosen must be from the areas of the Arts, Humanities, and Social Sciences and must fulfill the general education requirements of the University and the College.

A COMPARISON OF THE B.A. and B.S. DEGREES

B.A.

- ENG 101 - English Composition
- ENG 317 - Business and Technical Writing
- COM 103 - Fundamentals of Public Communication
- ECO 120 - Principles of Microeconomics
- ECO 121 - Principles of Macroeconomics
- 37 hours Computer Science
- Completion of an approved minor (at least 18 hours outside of computer science)
- Two semesters of Mathematics (MAT 126 and above)
- MAT 215 or MAT 434 - Statistics course
- Meet General Education Requirements
- Meet College Requirements
- Meet College Requirements for the B.A. degree

B.S.

- COM 103 - Fundamentals of Public Communication
- ENG 101 - English Composition
- ENG 317 - Business and Technical Writing
- 43 hours Computer Science
- Four semesters Mathematics (MAT 126, MAT 127, MAT 127, MAT 228)
- MAT 434 - Introduction to Statistics
- PHY 121/122 - Physics I and II
- ECE 172 - Logic Systems
- AND - one of:
 - ECE 471, ECE 475, ECE 477
- Meet General Education Requirements
- Meet College Requirements
- Meet College Requirements for the B.S. degree

MASTER OF SCIENCE DEGREE PROGRAM

The Department of Computer Science offers a Master of Science degree. For details see the graduate school catalog.

ECONOMICS

Professor Townsend (Chairperson)

Professors Burke, Duchesneau, Hunt (Libra Professor of Regional Economics), Lutz

Associate Professors Breece, Wihry

Assistant Professors Kearney, McCallie, Montgomery, Mueller (Economics and Canadian Studies)

Adjunct Professor of Economics and Canadian Studies Morici

The Department of Economics offers two degree programs: The Bachelor of Arts in Economics and the Bachelor of Arts in Economics/International Affairs. The department also offers a minor in economics.

BACHELOR OF ARTS IN ECONOMICS

DEPARTMENTAL REQUIREMENTS

To receive the Bachelor of Arts degree in Economics the student must satisfy all requirements of the College of Liberal Arts and Sciences, complete the economics core courses and 21 additional hours of courses in economics, and satisfy the mathematics and statistics requirement. The grade-point average for courses in economics must be 2.0 or higher. Economics majors are required to obtain 18 credit hours in economics at the University of Maine.

Required economics courses consist of the following:

1. Economics core courses: ECO 120, Principles of Microeconomics and ECO 121, Principles of Macroeconomics. Students taking ECO 120 and ECO 121 may not receive credit for INT 110. Only 6 hours may be earned for introductory courses. ECO 310, Introduction to Economics/Accelerated, may not be used as a substitute for ECO 120 and ECO 121. ECO 420 Intermediate Microeconomics, ECO 421 Intermediate Macroeconomics, ECO 420 and ECO 421 should be taken early in the student's program of study. A minimum grade of C- is required in ECO 420 and ECO 421.
2. Twenty-one additional credit hours of courses in economics, of which 9 credit hours must be at or above the 400 level. ECO 335, History of Economic Thought, is recommended but not required. ECO 480, Introduction to Mathematical Economics, and ECO 485, Introduction to Economic Statistics and Econometrics, are strongly recommended for students considering graduate study in economics.

The economics major must also complete a course in mathematics and a course in statistics. These may be selected from the following lists:

1. Mathematics: MAT 114, Calculus for Business and Economics, MAT 151, Calculus for the Life Sciences, MAT 126, Calculus I, MAT 122, Pre-Calculus, or MAT 241, Logic. Students considering graduate work in economics at the M.A. level are urged to take MAT 126, Calculus I. Students considering graduate work in economics at the Ph.D. level should consider taking MAT 126, Calculus I, and MAT 127, Calculus II, as well as MAT 262, Linear Algebra.
2. Statistics: MAT 215, Introduction to Statistics for Business and Economics, MAT 232, Principles of Statistical Inference, or MAT 434, Introduction to Statistics.

BUA 201, Principles of Accounting I, and COS 100, Introduction to Personal Computers, are strongly recommended but not required.

THE ECONOMICS CURRICULUM

The department offers courses at the introductory, intermediate, and graduate levels. Introductory courses are designed to respond to several needs. The department offers a two-semester sequence of introductory courses: ECO 120, Principles of Microeconomics, and ECO 121, Principles of Macroeconomics. INT

110, Modern Economic Problems, is directed toward the student who wishes to have an overview of contemporary economics. ECO 120, ECO 121, and INT 110 satisfy General Education Requirements in the area of Human Values and Social Context: Social Contexts and Institutions. INT 105 satisfies the General Education Requirements in the area of Human Values and Social Context: Population and the Environment.

The variety of intermediate level courses offered by the department reflects the wide scope of contemporary economics. The department is particularly strong in applied microeconomics and international economic affairs.

A number of 300 and 400 level economics courses fulfill General Education Requirements. Those fulfilling the Mathematics-Statistics category are ECO 480 and ECO 485. Under the Human Values and Social Context requirements: Western Cultural Tradition: ECO 330, ECO 335 and ECO 336; Cultural Diversity and International Perspectives: ECO 313, ECO 337, ECO 338, ECO 340, and ECO 439.

The Department has established prerequisites for intermediate-level courses. Several courses require only that the student have completed ECO 120, Principles of Microeconomics, and ECO 121, Principles of Macroeconomics. Other courses have additional prerequisites. The prerequisite(s) for specific courses are indicated in the course listings.

Graduate-level courses are available to advanced undergraduate students with the permission of the instructor.

CAREER OPTIONS FOR ECONOMICS MAJORS

The Bachelor of Arts in Economics is offered primarily as a degree in the liberal arts. The major offers students valuable preparation for a variety of career paths. Students may design their programs of study:

1. For immediate entry upon graduation into business, government, or other employment.
2. For graduate education leading to a business administration, law, or other professional degree.
3. For graduate work in economics or related disciplines.

Students are encouraged to work closely with their advisors on matters of career preparation.

BACHELOR OF ARTS IN INTERNATIONAL AFFAIRS/ ECONOMICS

To receive the Bachelor of Arts degree in International Affairs/Economics, the student must satisfy all the requirements of the College of Liberal Arts and Sciences and complete at least nine hours each in anthropology, history and political science from a list of approved courses with an international focus, take six hours of a modern foreign language beyond the intermediate level, and complete the following requirements:

1. Economics Courses ECO 120, Principles of Microeconomics and ECO 121, Principles of Macroeconomics, or the equivalent; ECO 420, Intermediate Microeconomics; ECO 421, Intermediate Macroeconomics;

Three courses from the following: ECO 331 Global Political Economy, ECO 337 Comparative Economic Systems, ECO 338 Economic Development, ECO 340 Canadian Economics: Issues

and Policies, ECO 347 Canadian Labor Markets, ECO 439 International Trade and Commercial Policy

And six (6) additional hours of upper level economics courses. A minimum grade of C- is required in ECO 420 and ECO 421.

With permission, students may substitute ECO 525 Advanced Topics in Economic Development, for ECO 338; ECO 523 Advanced International Trade and Commercial Policy, or ECO 524. Advanced International Finance, for ECO 439, also BUA 343 Introduction to International Business, can, where appropriate, be a substitute.

International Affairs/Economics majors are required to obtain 12 credit hours in Economics at the University of Maine.

2. Math and Statistics Requirements are the same as indicated for the economics major.

Additional information is presented under International Affairs.

EDUCATION

Professors Bamford, Cobb, Davis, Donaldson, Harris, Kristo, McIntire, Perry, Work

Associate Professors Abbott, E. Brazee, P. Brazee, Breen, Brown, Butterfield, Coladarci, Estler, R. Lehnhard, Maddaus, Pooler, Power, Quaglia, H.

Richardson, Rog, Schutz, Skehan, Weller, Zeph

Assistant Professors Artesani, King, Reif, Spector, Wilhelm

Lecturers Bird, Fox

Cooperating Professor Lewis

Cooperating Assistant Professors Anderson, Hicks

Cooperating Instructor Counihan

Cooperating Lecturers Ames, Ballinger, Dwyer, Dyer, Graham, Linder, Wren, Young

ELEMENTARY EDUCATION

A program of study for the B.S. degree in Elementary Education requires a minimum of 120 credits of courses and field experiences distributed across General Education and Academic Specialization requirements, professional Education requirements and Students Teaching. The program includes:

Sixty or more credits in General Education, disciplines related to the arts and humanities, social sciences and natural sciences;

An Academic Specialization or 24-credit concentration in one of the following areas: Art, Canadian Studies, Developmental Disabilities, English, French, Honors, Human Development, International Affairs, Mathematics, Music, Natural Science, Peace Studies, Philosophy, Psychology, Spanish, Social Studies and Women's Studies.

Credits in Professional Education and a full semester of Student Teaching.

Courses taken to meet General Education requirements may be counted toward the Academic Specialization.

SECONDARY EDUCATION

The General Education requirements for the B.S. degree in Secondary Education includes a minimum of 71 credits in disciplines related to the arts and humanities, social sciences and natural sciences, including 45-52 credits in either mathematics, sciences, English, social studies or modern language, depending on a student's selected specialization.

Professional Education requirements include course-work related to education, a field experience connected to the methods course in the area of specialization, and student teaching.

KINESIOLOGY AND PHYSICAL EDUCATION

Students pursuing a B.S. degree in Kinesiology and Physical Education follow General Education, Area Specialization and Professional Education requirements, including student teaching and must successfully complete a minimum of 120 credit hours. This diverse program encompasses all the elements of total well-being to train teachers, health professionals and fitness experts who use their skills in a variety of careers to the well being of children and youth.

PROGRAMS OF STUDY

For specific information regarding courses required in each program of study, please contact the Dean of the College of Education and Human Development at (207) 581-2435.

ELECTRICAL AND COMPUTER ENGINEERING

Professor Musavi (Interim Chairperson)
Professors Field, Irons, Vetelino
Associate Professors Eason, Hanselman, Hummels, Patton
Assistant Professor Segee
Lecturers Beenfeldt, Whitney
Adjunct Professor Josse
Research Professor Lec

OVERVIEW OF UNDERGRADUATE ELECTRICAL AND COMPUTER ENGINEERING PROGRAMS

The Department of Electrical and Computer Engineering offers both graduate and undergraduate degrees. The undergraduate program has two degree programs, one leading to a Bachelor of Science in Electrical Engineering and the other leading to a Bachelor of Science in Computer Engineering. Both programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The goal of each program is to give students a quality education that will prepare them for positions in industry or government as well as further study in graduate school. This is accomplished with dedicated faculty having a strong interest in undergraduate teaching, who combine classroom theory with practice using well-equipped laboratories.

In the early levels of both majors, students build a strong foundation by taking courses in mathematics, physics, chemistry and computer science. In addition, students are introduced to their major with courses that familiarize them with their profession and also give them useful skills. Learning these skills introduces the students to one part of their profession and also makes it easier for them to qualify for meaningful employment during summers or cooperative work experiences.

Cooperative work placements in industry are available for those students who wish to include relevant industrial experience in their programs.

In addition, many opportunities exist for students to work with faculty on their research/development projects and also to assist with laboratory instruction. In addition to 15 credit hours of humanities and social sciences, ECE students take 9 credit hours of speech and writing courses. It has been estimated that as much of 50% of engineering can be writing, speaking, and persuading, so these courses not only broaden one's perspective they also help develop communication skills that are very important to an engineer.

In the upper levels, students take ECE 300 Seminar and the senior project course sequence ECE 401, 402, and 403. The junior ECE seminar furnishes career orientation and instills professional values through a series of presentations by faculty and practicing professionals from industry. The senior project course sequence occurs during the last three semesters of a student's program. It allows students to demonstrate their engineering design capabilities through proposing, creating, and reporting on detailed design projects. These engineering design capabilities are developed throughout the curriculum, beginning with the first year, by asking that students apply the knowledge they have learned to create something new. This "something" has to meet a set of specifications, while at the same time being subject to a set of constraints; the thing to be designed could be a device, a software module, or a system combining hardware and software. By their senior year, ECE students have been given the theoretical and practical background to handle challenging design problems.

Detailed information about the Electrical Engineering and Computer Engineering Programs is presented in the following sections.

COMPUTER ENGINEERING

The Computer Engineering Program provides its graduates with the knowledge necessary to design systems based on computer and complex digital logic devices. These systems find use in such diverse tasks as computation, communication, entertainment, information processing, artificial intelligence and control. There are many career opportunities in the public and private sectors for persons with a background in Computer Engineering. Some of these opportunities are in computer-aided design, computer-aided manufacturing as well as developing hardware and software for computer-based systems.

A computer engineer must know how to select and interconnect the electronic and mechanical devices which make up a computer-based system. This is the kind of work usually associated with electrical engineering. However, the computer engineer must also be capable of developing the software that makes a computer system perform its task. He or she might need to know, for example which programming language is best for a particular need or what the most efficient way to store or process data. This area is normally associated with computer science. Thus, a computer engineer must be proficient with computer science material as well as electrical engineering material.

The choice of technical elective courses is based on individual interest and presently allows specialization in areas like Digital Control, Communications, Power Systems, Robotics, Computer Graphics, Machine Vision, and Integrated Circuit Design.

ACADEMIC POLICIES FOR COMPUTER ENGINEERING

The program in Computer Engineering is normally completed within four years. The program is divided into lower and upper divisions. Lower division courses, 1xx and 2xx course numbers, are normally taken in the first four semesters and upper division courses 3xx and 4xx course numbers, in the last four semesters. With advisor permission, a lower division student may take up to 9 credit hours of upper division courses which have no upper division prerequisites.

The ENG 101 requirement may be satisfied by successful completion of the exit exam given in the first semester of the first year. Advanced math placement may also be obtained by examination.

Admission in ECE 210 is not allowed with more than one grade less than C- in MAT 126, MAT 127, PHY 121 and PHY 122. No ECE or COS class may be taken unless all prerequisites have been satisfied. Repeating a course more than once requires the Dean's approval.

Admission to the upper division may be granted (1) upon completion of all lower division courses with a minimum GPA of 2.0 (2) by having no more than three course repeats, and (3) obtaining grades of C- or better in all lower division ECE courses.

Dismissal may be recommended if: (1) any course in the program is failed twice or (2) a GPA of less than 2.0 in ECE and COS courses is obtained for two successive semesters.

To obtain a B.S. in Computer Engineering, a student must: (1) meet all University academic requirements, (2) meet all Computer Engineering curriculum requirements, and (3) have a GPA of 1.8 or

better in upper division ECE and COS courses without the benefit of lineout. Deviation from the above policies requires approval of the Electrical and Computer Engineering faculty.

ELECTRICAL ENGINEERING

The Electrical Engineering curriculum is designed to provide students with the relevant skills and the basic scientific background needed to advance today's technology and to keep abreast of future developments in the electrical engineering profession.

The early part of the program emphasizes electrical engineering skills which form the background for the upper level elective and design courses. The upper level courses are arranged in concentration areas to provide guidance in selecting a particular area of interest for in-depth study. Additional technical electives are chosen from outside of the area of concentration to provide breadth of knowledge.

The five upper level concentration areas are:

Communications and Signal Processing—Including computer vision, communication systems and signal processing.

Computer Hardware—including microprocessor applications, computer architecture, digital design, and industrial computer control.

Electronics—solid state circuit design and applications. Opportunities exist to emphasize either analog or digital systems.

Power and Industrial Control— Including robotics, power generation, transmission and distribution, automation and control systems.

Sensors—Including electromagnetic and acoustic fields, microwaves, antennas, optics, ultrasonic transducers, sensors, solid state and microwave devices.

ACADEMIC POLICIES FOR ELECTRICAL ENGINEERING

The program in Electrical Engineering is normally completed within four years. The program is divided into lower and upper divisions. Lower division courses, 1xx and 2xx course numbers, are normally taken in the first four semesters and upper division courses, 3xx and 4xx course numbers, in the last four semesters. With advisor permission, a lower division student may take up to 9 credit hours of upper division courses which have no upper division prerequisites.

The ENG 101 requirement may be satisfied by successful completion of the exit exam given in the first semester of the first year. Advanced math placement may also be obtained by examination.

Admission in ECE 210 is not allowed with more than one grade less than C- in MAT 126, MAT 127, PHY 121 and PHY 122. No ECE class may be taken unless all prerequisites have been satisfied. Repeating a course more than once requires the Dean's approval.

Admission to the upper division may be granted (1) upon completion of all lower division courses with a minimum GPA of 2.0, (2) by having no more than three course repeats, and (3) obtaining grades of C- or better in all lower division ECE courses.

Dismissal may be recommended if: (1) any course in the program is failed twice or (2) a GPA of less than 2.0 in ECE courses is obtained for two successive semesters.

To obtain a B.S. in Electrical Engineering, a student must: (1) meet all University academic requirements, (2) meet all Electrical Engineering curriculum requirements, and (3) have a GPA of 1.8 or better in upper division ECE courses without the benefit of lineout. Deviation from the above policies requires approval of the Electrical and Computer Engineering Faculty.

ELECTRICAL ENGINEERING CONCENTRATION AREA POLICIES

Each Student must take a minimum of 7 technical electives accumulating at least 21 credits and 7 design credits. These courses must be chosen so that:

1. Three of the four courses, ECE 323, ECE 383, ECE 414, or ECE 471 must be taken.

2. At least one concentration must be represented by the courses in bold plus one additional course from the concentration.
3. The remaining technical electives need not be from ECE but should be consistent with the concentration chosen and be approved by the student's advisor.

Upper Level Courses required for all Concentration areas:

Five General Education Electives

COM 103 Fundamentals of Public Communication
ECE 300 Seminar
ECE 314 Linear Circuits and Systems
ECE 342 EElectronics I
ECE 351 Fields and Waves
ECE 401 Electrical and Computer Engineering Design Project
ECE 402 Electrical and Computer Engineering Design Project
ECE 403 Electrical and Computer Engineering Design Project
ENG 317 Business and Technical Writing
MAT 332 Statistics for Engineers

Upper Level Concentration areas:

Communications and Signal Processing

ECE 383 Communications Engineering
ECE 486 Digital Signal Processing
ECE 343 Electronics II
ECE 453 Microwave Engineering
ECE 480 Quantization and Digital Techniques
ECE 487 Digital Image Processing

Computer Hardware

ECE 471 Microprocessor Applications Engineering
ECE 473 Computer Architecture and Organization
ECE 417 Introduction to Robotics
ECE 475 Sequential Logic Systems
ECE 477 Hardware Applications Using C
ECE 478 Industrial Computer Control

Electronics

ECE 343 Electronics II
ECE 441 Micro-Electronics Filter Theory and Design
ECE 444 Analog Integrated Circuits
ECE 445 Analysis and Design of Digital Integrated Circuits
ECE 464 Microelectronics

Power and Industrial Control

ECE 323 Electric Power Systems I
ECE 427 Electric Power Systems II
ECE 428 Electric Power Systems III
ECE 414 Feedback Control Systems
ECE 416 Design of Control Systems
ECE 417 Introduction to Robotics

Sensors

ECE 465 Introduction to Sensors
ECE 466 Sensor Technology and Instrumentation
ECE 343 Electronics II
ECE 453 Microwave Engineering
ECE 477 Hardware Applications using C

DOUBLE MAJORS AND DOUBLE DEGREES

Students may wish to consider having a double major or obtaining a second degree. For example, common choices are to combine electrical and computer engineering or electrical and mechanical engineering. Ordinarily this will take approximately one more year of study. However, the student should see his or her advisor early in the process to be sure all requirements will be met.

GRADUATE WORK IN ELECTRICAL ENGINEERING

Programs leading to the degree of Master of Science in Electrical Engineering and Master of Science in Computer Engineering are described in the University of Maine Graduate School Catalog.



SUGGESTED CURRICULUM FOR THE B.S. in COMPUTER ENGINEERING

First Year

First Semester

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
ECE 101 Introduction to Electrical and Computer Engineering	4
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4

TOTAL HOURS 16

Second Semester

COS 220 Introduction to Computer Science I	3
ECE 172 Logic Systems	4
MAT 127 Calculus II	4
PHY 122 Physics for Engineers and Physical Scientists II	4

TOTAL HOURS 15

Sophomore Year

First Semester

COS 221 Introduction to Computer Science II	3
ECE 210 Electrical Networks I	3
ENG 101 (1) College Composition	3
MAT 228 Calculus III	4
Basic Science(4)	4

TOTAL HOURS 17

Second Semester

ECE 211 Electrical Networks II	4
ECE 262 Solid State Electronic Devices	3
MAT 258 Introduction to Differential Equations with Linear Algebra	4
General Education Elective(2)	3

TOTAL HOURS 14

Junior Year

First Semester

COS 250 Discrete Structures	3
ECE 300 Seminar	1
ECE 314 Linear Circuits and Systems	3
ECE 342 Electronics I	4
ECE 471 Microprocessor Applications Engineering	3
Engineering Science Elective(3)	3

TOTAL HOURS 17

Second Semester

COS 315 Introduction to Software Engineering	3
ECE 401 Electrical and Computer Engineering Design Project	1
ECE 475 Sequential Logic Systems	3
ENG 317 Business and Technical Writing	3
MAT 332 Statistics for Engineers	3
General Education Elective(2)	3

TOTAL HOURS 16

Senior Year

First Semester

COS 331 Operating Systems	3
ECE 402 Electrical and Computer Engineering Design Project	1
General Education Elective(2)	2
Technical Elective(5)	5
Technical Elective(5)	5

TOTAL HOURS 16

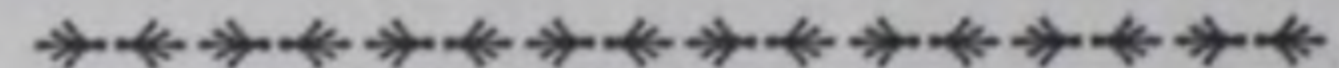
Second Semester

COM 103 Fundamentals of Public Communications	3
ECE 403 Electrical and Computer Engineering Design Project	1
General Education Elective(2)	2
General Education Elective(2)	2
Technical Elective(5)	5
Technical Elective(5)	5

TOTAL HOURS 18

TOTAL CREDITS REQUIRED: 128

1. ENG 101 is a prerequisite for ENG 317. Certain students may meet this prerequisite by examination.
2. Three credits must be from each of the six General Education categories, ethics, western cultural tradition, social context and institutions, cultural diversity and international perspectives, population and the environment, artistic and creative expression. A list of General Education courses and the categories they satisfy is available in the ECE office and elsewhere in this catalog. See index.
3. A list of courses qualifying for engineering science elective credit is available in the ECE office.
4. Suggested basic science courses include: AST 110/AST 215, CHY 132/134, PHY 236 or BIO 100 (4 hours required).
5. Technical electives must include at least 4 hours of engineering design and maintain a hardware/software balance.



SUGGESTED CURRICULUM FOR THE B.S. in ELECTRICAL ENGINEERING

First Year

First Semester

CHY 121/123 Introduction to Chemistry	4
ECE 101 Introduction to Electronic and Computer Engineering	4
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4

TOTAL HOURS 16

Second Semester

MAT 127 Calculus II	4
PHY 122 Physics for Engineers and Physical Scientists II	4
COS 220 Introduction to Computer Science I	3
ECE 172 Logic Systems	4

TOTAL HOURS 15

Sophomore Year

First Semester

ECE 210 Electrical Networks I	3
Engineering Science Elective (4)	4
Basic Science (2)	2
ENG 101* College Composition	3
MAT 228 Calculus III	4

TOTAL HOURS 16

*ENG 101 is a prerequisite for ENG 317. Certain students may meet this prerequisite by examination.

ECE 211 Electrical Networks II	4
ECE 262 Solid State Electronic Devices	3
MAT 258 Differential Equations and Linear Algebra	4
Engineering Science Elective (4)	3
TOTAL HOURS	14

Junior Year

First Semester

ECE 300 Seminar	1
ECE 314 Linear Circuits and Systems	3
ECE 342 Electronics I	4
ECE 351 Fields and Waves	3
General Education Elective (1)	3
MAT 332 Statistics for Engineers	3
TOTAL HOURS	17

Second Semester

ECE 401 Electrical and Computer Engineering Design Project	1
ENG 317 Business and Technical Writing	3
Technical Elective(3)	3-4
Technical Elective(3)	3
Technical Elective(3)	3
General Education Elective(1)	3
TOTAL HOURS	16-17

Electives:

Three credits must be from each of the six General Education categories, ethics, western cultural tradition, social context and institutions, (COM 103 satisfies this category), cultural diversity and international perspectives, population and the environment, artistic and creative expression. A list of General Education courses and the categories they satisfy is available in the ECE office or elsewhere in this catalog. See index. Some courses may satisfy two or more categories.

Suggested basic science courses include AST 110/AST 215, CHY 132/34, PHY 236, or BIO 100 (four hours required).

Technical electives must comply with concentration area policies.

A list of courses qualifying for engineering science elective credit is available in the electrical and computer engineering office. One engineering elective must be either MEE 230 or MEE 252.

First Semester

COM 103 Fundamentals of Public Communications	3
ECE 402 Electrical and Computer Engineering Design Project	4
Technical Elective (3)	3
Technical Elective (3)	3
General Education Elective (1)	3
TOTAL HOURS	16

Second Semester

ECE 403 Electrical and Computer Engineering Design Project	2
Technical Elective (3)	3
Technical Elective (3)	3
General Education Elective (1)	3
General Education Elective (1)	3
TOTAL HOURS	14

TOTAL CREDITS REQUIRED: 125-126
depending on concentration area.

ENGINEERING PHYSICS

Professor Brownstein (Chairperson)
Professors Comins, Hess, Kleban, Lad, Morrow, Smith, Unertl
Associate Professors Batuski, Harmon, McClymer, McKay, Mountcastle
Assistant Professor Harrington
Lecturer Clark
Cooperating Professor Rasaiah

The Bachelor of Science (BS) degree in Engineering Physics is designed to meet the needs of students who are interested in both engineering and science (especially physics and mathematics). The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). It combines a traditional university-level physics program with an "area of engineering specialization" in a particular engineering discipline. The program offers a high degree of flexibility to meet specific interests and career goals. In addition to the obvious technical training (physics, engineering, mathematics, etc.) an emphasis is placed upon humanities and social sciences, technical writing, as well as ethics, safety and similar aspects associated with being a productive, well-rounded engineer/citizen.

Many of the graduates from this program go directly into engineering or engineering-related jobs. The Engineering Physics training is particularly useful for those students who are likely to be employed in a variety of engineering areas during their careers. Other graduates go on to further their education, obtaining advanced degrees (MS or PhD) in physics, engineering, or other disciplines at schools all over the country.

Some features of the program are:

1. Required courses in physics. These include general physics, modern physics, optics, mechanics, electricity and magnetism, and quantum mechanics. Additional elective courses can be in astrophysics, biophysics, thermodynamics, materials physics, nuclear physics, and statistical mechanics. Many of these combine traditional physics with some engineering science or engineering design.
2. A physics laboratory course in each of the eight semesters, including first year introductory physics (PHY 121/122). Starting with the sophomore year laboratory (PHY 229/230), these classes tend to be small with each student receiving personal attention from a faculty member. The junior year laboratory sequence (PHY 441/442) also treats experimental error analysis and modern instrumentation techniques. The senior year laboratory (PHY 481/482) focuses on an individual student project. In this senior "capstone" design experience, each student works under the guidance of a physics (or engineering) faculty project advisor. The student brings to bear his/her classroom and laboratory experience upon a project chosen by the student in consultation with the project advisor.
3. A senior year seminar course (PHY 488/489), the second aspect of the senior "capstone" experience, emphasizes oral as well as written, technical communication. Guest speakers address issues such as professional ethics, patents, resumes, information retrieval, etc.
4. Engineering sequence. This consists of a minimum of seven engineering courses most of which lie in the student's area of engineering specialization. These courses contribute heavily to the required amount of engineering science and engineering design.
5. Writing (especially technical writing). This is emphasized throughout the four year curriculum: each laboratory course has graded written reports while every non-laboratory course has graded written problem work with some courses requiring term papers. In the junior year laboratory (PHY 441/442) students receive additional individualized training in technical writing.

6. Six required courses in mathematics (in addition to computer programming) with the upper level ones chosen to involve those topics which may be of benefit to an engineering student.

ENGINEERING PHYSICS AND COOPERATIVE EDUCATION

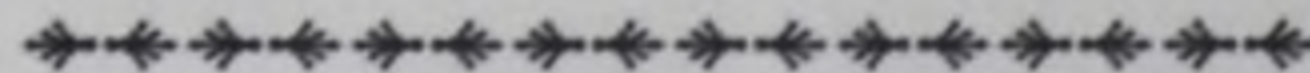
Any student in good standing enrolled in the engineering physics curriculum who has completed the sophomore year has the option of applying for a cooperative education program. Cooperative education is the integration of practical work experience, obtained through specific periods of employment in industry, business, or government, into the on-campus classroom and laboratory course curriculum. A student in the Cooperative Education Program works as a paid employee in an engineering environment at a job selected mutual agreement with the student, the employer, and the Cooperative Education Coordinator of the Department of Physics. Academic credit is received through enrollment in PHY 495, Engineering Physics Practice.

GRADUATE WORK IN PHYSICS AND ENGINEERING PHYSICS

Graduate opportunities and requirements for the Master of Science degree in physics and the Doctor of Philosophy degree in physics, and the Master of Engineering degree in Engineering Physics are described in the Graduate School catalog.

COURSES IN ENGINEERING PHYSICS

Consult courses listed under course prefix (PHY) in the alphabetical course listing in this catalog.



SUGGESTED CURRICULUM B.S. in ENGINEERING PHYSICS

The suggested curriculum represents the program for a typical student in the engineering physics curriculum. There are possible alterations to this schedule and substitutions may be made for some courses on approval of the Department Chairperson. Students desiring to transfer from another engineering program in their first or sophomore years may do so without loss of credit or delays in graduation. The considerable flexibility in the engineering physics program will allow a student to design an individual curriculum with the assistance of his or her advisor.

First Year

First Semester

PHY 121 Physics for Engineers and Physical Scientists I
CHY 121 Introduction to Chemistry
CHY 123 Introduction to Chemistry Laboratory
MAT 126 Calculus I
GEE 101 Introduction To Engineering Design

TOTAL HOURS

1

Second Semester

PHY 122 Physics for Engineers and Physical Scientists II	4
ENG 101 College Composition	3
MAT 127 Calculus II	4
COS 220 Introduction to Computer Science(2)	3
Engineering Sequence Elective I(3)	3-4
TOTAL HOURS	17-18

Sophomore Year

First Semester

PHY 236 Introductory Modern Physics	4
PHY 229 Physical Measurements Laboratory I	2
MAT 228 Calculus III	4
Engineering Sequence Elective II	3
Humanities Elective I(1)	3
TOTAL HOURS	16

Second Semester

PHY 238 Mechanics	3
PHY 230 Physical Measurements Laboratory II	2
MAT 259 Differential Equations	3
MET 107 Machine Tool Lab I	2
Engineering Sequence Elective III	3
Humanities Elective II	3
TOTAL HOURS	16

Junior Year

First Semester

PHY 454 Electricity and Magnetism I	3
PHY 441 Physical Electronics Laboratory	2
MAT 453 Partial Differential Equations I	3
Engineering Sequence Elective IV	3
Engineering Sequence Elective V	3
Humanities Elective III	3
TOTAL HOURS	17

Second Semester

PHY 455 Electricity and Magnetism II	3
PHY 442 Modern Experimental Physics	2
PHY 472 Geometrical and Fourier Optics	3
Math Elective(4)	3
Humanities Elective IV	3
Engineering Sequence Elective VI	3
TOTAL HOURS	17

Senior Year

First Semester

PHY 469 Quantum and Atomic Physics	3
PHY 481 Project Laboratory in Physics I	3
PHY 488 Physics Seminar I	1
Engineering Sequence Elective VII	3
Physics Elective(5)	3
Humanities Elective V	3
TOTAL HOURS	16

Second Semester

PHY 482 Project Laboratory in Physics II	3
PHY 489 Physics Seminar II	1
Humanities Elective VI	3
Technical Elective I(6)	3
Technical Elective II	3
Free Elective (optional)	
TOTAL HOURS	13

TOTAL CREDITS REQUIRED: 127

Notes:

1. Humanities Electives: 18 credit hours from an approved list are required for accreditation: at least two of these courses should be upper level.
2. Students with programming experience may substitute ECE 172, Logic Systems (Cr 4).
3. Student selects an area of engineering specialization normally from electrical and computer, mechanical, chemical, or civil engineering. The seven course sequence is carefully chosen by the student in consultation with his/her advisor so as to meet the college requirement of 48 hours of engineering topics. Normally, the engineering physics major will take a minimum of 32 hours of engineering science and 16 hours of engineering design (some of these are contained in the physics courses) to meet this requirement. A detailed list of possible engineering courses, suitable for engineering physics majors, along with their contribution to the engineering topics requirement is available in the department office.
4. Choose from MAT 454, MAT 459, MAT 434, MAT 471, or an approved similar math course.
5. Possible Physics Electives:
 First Semester: PHY 462 Physical Thermodynamics
 PHY 470 and 471 Nuclear Physics; PHY 501, Mechanics; AST 451, Astrophysics I.
 Second Semester: PHY 447, Molecular Biophysics
 PHY 463, Statistical Mechanics; PHY 473, Modern Optics Lab; PHY 480, Physics of Materials; AST 452, Astrophysics II.
6. Technical Elective: physics, engineering, or approved science or mathematics course.

Engineering Physics students receive instruction and evaluation in technical writing as part of PHY 441 and PHY 442. Students not evaluated as satisfactory may be required to take an additional writing course; this can be counted as a free elective.

Students admitted to the Honors Program can substitute Honors courses for appropriate humanities and physics courses.

SCHOOL OF ENGINEERING TECHNOLOGY

Professor McDonough, Director
Professors Crosby, Gould
Associate Professors Dunning, Dvorak, Elliott, Furbish, Gray, Hermansen, Metcalf
Assistant Professor Viger
Instructor Madden
Lecturer Newman

Engineering technology programs are offered at the Bachelor's Degree level.

Bachelor's programs are offered in bio-resource engineering technology, construction management technology, electrical and mechanical engineering technology. The programs are designed to prepare students for practical work in the application of scientific and engineering principles in the solution of practical problems. The BSCMT, BSEET, and BSMET programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET).

Visit our web site at:

<http://www.ume.maine.edu/~engtech/set.htm>
or email us at lamounta@maine.maine.edu

GRADUATION REQUIREMENTS

1. An accumulative average of 2.0 in all required major courses (i.e., CET, EET, MET).
2. An accumulative average of 2.0.
3. Passing grades in all other required courses in the program of study.
4. A minimum of 124 degree hours, (depending on program).

TRANSFER CREDIT

All students who transfer to the School of Engineering Technology from another institution must earn a minimum of 36 hours of Orono courses to qualify for the B.S. degree.

Degree credit will be allowed for appropriate courses in which grades of "C" or above have been received from accredited degree programs. Degree credit is not allowed for courses taken in certificate or diploma programs.

All students who transfer to the School of Engineering Technology B.S. programs with an appropriate Associate degree from a TAC of ABET accredited program will receive full credit for that degree.

Evaluation of all such courses and programs for approval of degree credit and possible equivalency rests with the Director of the School of Engineering Technology.

BIO-RESOURCE ENGINEERING TECHNOLOGY

The B.S. in Bio-Resource Engineering Technology is offered by the faculty of the Department of Biosystems Science and Engineering.

The curriculum provides training in specific aspects of engineering technology together with instruction in business, economics, computing and accounting. It is designed to prepare graduates for jobs in the application of equipment, systems and technologies to the production, processing, shipping, storage and handling of food and fiber products from agriculture, forestry, fisheries and aquaculture.

Graduates will find employment as managers or maintenance supervisors of production and processing facilities, technical representatives for machinery and equipment companies, and support, testing or installation personnel for manufacturers, material suppliers, processors, contractors and primary producers.

This degree requires satisfactory completion of at least 120 degree hours at an accumulative grade point average of not less than 2.0 in a course of study which conforms to the following curriculum

CONSTRUCTION MANAGEMENT TECHNOLOGY

The Construction Management Technology program is a blend of civil engineering technology and construction business management. The first two years of the curriculum are equivalent to an associate degree in civil engineering technology. Starting with a basic grounding in mathematics and the physical sciences, the student is concurrently and progressively taught surveying, material testing, structural analysis and design, and highways. The program then moves into technical construction topics, such as estimating, and heavy-highway and building methods and equipment. Subsequently the curriculum features management courses tailored to construction industry financial and operating practices. There is extensive use of computer application programs throughout.

With a Bachelor of Science degree, graduates are prepared to initially perform technical/supervisory tasks in the field and office, and to then advance to management positions. Prospective employers include construction contractors and subcontractors, private and public construction inspection agencies and contract administrators and major facility owners. There may also be similar employment opportunities in other project-oriented industries, such as aircraft, aerospace, and ship-building. On the purely technical side, there are soils, foundation and building materials testing firms.

ELECTRICAL ENGINEERING TECHNOLOGY

The Electrical Engineering Technology (EET) program provides an opportunity for qualified students to obtain a bachelor of science degree which will prepare them to pursue highly successful careers in EET in the power, process and manufacturing industries of Maine. The core subject areas that the EET program concentrates on are electrical circuits, semiconductor electronics, microcomputer applications and electrical machinery and power systems. The subject areas are taught in a way that includes a strong component of practical applications along with basic theoretical concepts. The EET programs should appeal to students who want a good education, without the heavy emphasis on theory and advanced mathematics found in traditional engineering programs.

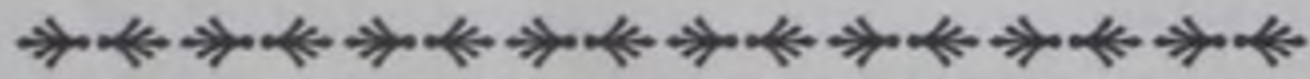
Graduates of the EET program fill a wide variety of professional technical positions in industry. Most commonly, however, they take jobs which are involved with manufacturing a product or operating a plant. These types of jobs often require that EET graduates work with computer controlled manufacturing systems, power generation and distribution systems, electrical machinery and motor controls and instrumentation and process controls. Field engineer or technical representative is another good starting position for EET graduates.

MECHANICAL ENGINEERING TECHNOLOGY

The field of mechanical engineering technology includes mechanical design, manufacturing processes, energy production and

ilization, and the economics of these activities. Students also obtain solid foundation in basic sciences, mathematics, communication skills and the humanities.

Classes emphasize applied engineering and are supplemented by extensive laboratory experience. Students enroll in a four year program leading to a Bachelor of Science degree in Mechanical Engineering Technology. Students are urged to obtain technical employment during each summer recess. Participation in an optional co-op program is also encouraged. Graduates work in a wide range of careers including product development, design, testing, manufacturing, operation and maintenance, marketing, sales and administration.



SUGGESTED CURRICULUM B.S. in BIO-RESOURCE ENGINEERING TECHNOLOGY

First Year

First Semester

BRE 121 Introduction to Bio-Resource Engineering	2
ENG 101 College Composition	3
INT 110 Modern Economic Problems	3
PHY 111 General Physics I	4
OR	
PHY 107 Basic Physics	4
TME 151 Technical Mathematics I: Precalculus	3
TOTAL HOURS	15

Spring Semester

BRE 122 Fundamentals of Bio-Resource Engineering	2
MET 150 Statics	3
PHY 112 General Physics II	4
OR	
PHY 108 Basic Physics	4
TME 152 Technical Mathematics II: Pre-calculus and Introductory Calculus	3
General Education Requirement	3
TOTAL HOURS	15

Sophomore Year

First Semester

BRT 110 Shop Fundamentals	2
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
MET 217 Dynamics	3
MET 219 Strength of Materials	3
TME 253 Applied Calculus for Engineering Technology	4
TOTAL HOURS	16

Spring Semester

BIO 100 Basic Biology	4
COM 103 Fundamentals of Public Communication	3
EET 215 Circuits, Machines, and Electronics	3
General Education Requirement	3
Technical Electives	3
TOTAL HOURS	16

Junior Year

First Semester

BRT 360 Processing Machinery	3
ENG 317 Business and Technical Writing	3
MET 233 Thermodynamics	3
General Education Requirement	3
Technical Electives	3
TOTAL HOURS	15

Spring Semester

BRT 367 Power and Biomass Industries	3
BRT 368 Electrification	3
EET 330 Electrical Applications	3
Technical Elective	6
TOTAL HOURS	15

Senior Year

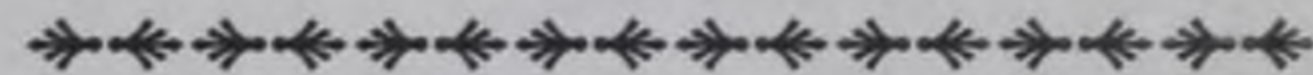
Fall Semester

BRT 365 Water and Waste	3
BRT 362 Fluid Power Technology	3
BRE 380 Senior Seminar	1
Technical Elective	3
BRT 392 Senior Capstone Project	2
General Education Requirement	3
TOTAL HOURS	15

Spring Semester

BRT 363 Buildings and Environment	3
BRT 369 Processing Technology	3
Technical Elective	3
BRT 392 Senior Capstone Project	1
Humanities Elective	3
General Education Requirement	3
TOTAL HOURS	13

TOTAL CREDITS REQUIRED: 120



CURRICULUM B.S. in CONSTRUCTION MANAGEMENT TECHNOLOGY

First Semester

CET 100 Introduction to Construction Management Technology	1
CET 124 Construction Safety	1
COS 100 Introduction to Personal Computers	3
MET 121 Technical Drawing	3
PHY 107 Technical Physics I	4
TME 151 Technical Mathematics I: Pre-calculus	3
TOTAL HOURS	15

Second Semester

CET 101 Plane Surveying	3
CET 130 Building Construction	4
COM 103 Fundamentals of Public Communication	3
ENG 101 College Composition	3
TME 152 Technical Mathematics II: Pre-calculus and Introductory Calculus	3
TOTAL HOURS	16

Third Semester

CET 202 Construction Surveying	2
CET 211 Statics and Strength of Materials	4
CIE 110 Materials	3
CIE 111 Materials Lab	1
TME 253 Applied Calculus for Engineering Technology	4
Western Cultural Tradition Elective*	3
TOTAL HOURS	17

Fourth Semester

CET 212 Structural Design	4
ENG 212 Persuasive and Analytical Writing	3
MAT 215 Introduction to Statistics for Business and Economics	3
PHY 108 Technical Physics II	4
Cultural Diversity Elective*	3
TOTAL HOURS	17

Fifth Semester

BUA 201 Principles of Accounting I	3
CET 320 Construction Methods and Equipment	3
CET 326 Soil Mechanics and Foundations	4
ECO 120 Principles of Microeconomics	3
Technical Elective	3
TOTAL HOURS	16

Sixth Semester

BUA 331 Labor Management Relations	3
CET 332 Civil Works Technology	3
CET 360 Construction Cost Estimating	4
COM 257 Business and Professional Communication	3
ECO 121 Principles of Macroeconomics	3
TOTAL HOURS	16

Seventh Semester

BUA 325 Principles of Management and Organization	3
CET 451 Construction Law	3
CET 462 Construction Scheduling	3
ENG 317 Business and Technical Writing	3
Population and the Environment Elective*	3
TOTAL HOURS	15

Eighth Semester

CET 456 Construction Documents and Administration	3
CET 458 Management of Construction	3
MET 484 Engineering Economics	3
Artistic and Creative Expression Elective*	3
Physical Science Elective/with Lab	4
TOTAL HOURS	16

TOTAL CREDITS REQUIRED: 128

STUDENT MUST SEE ADVISOR FOR APPROVAL OF ALL ELECTIVES

Lists of approved courses that meet the General Education requirements and Technical Elective are available in 221 East Annex. One of the Human Values/Social Context electives must also fulfill the Ethics requirement.



SUGGESTED CURRICULUM B.S. ELECTRICAL ENGINEERING TECHNOLOGY

First Semester

EET 100 Electrical Engineering Technology Seminar	1
ENG 101 College Composition	3
MET 121 Technical Drawing	3
PHY 107 Technical Physics I	4
TME 151 Technical Mathematics I: Pre-calculus	3
TOTAL HOURS	14

Second Semester

COM 103 Fundamentals of Public Communication	3
EET 111 Circuit Analysis I	5
PHY 108 Technical Physics II	4
TME 152 Technical Mathematics II: Pre-calculus and Introductory Calculus	3
TOTAL HOURS	15

Third Semester

COS 220 Introduction to Computer Science I(C)	
EET 211 Circuit Analysis II	
TME 253 Applied Calculus for Engineering Technology	
Western Cultural Tradition Elective *	
TOTAL HOURS	

Fourth Semester

EET 241 Linear Electronics I	
TME 354 Ordinary Differential Equations with Engineering Applications	
Artistic and Creative Expression Elective*	
Free Elective	
Science/Math Elective	
TOTAL HOURS	

Fifth Semester

EET 342 Linear Electronics II	
EET 371 Digital Electronics I	
ENG 317 Business and Technical Writing	
Cultural Diversity and International Perspectives Elective*	
Technical Elective	
TOTAL HOURS	

Sixth Semester

EET 312 Linear Systems I	
EET 321 Electrical Power Systems I	
EET 374 Introduction to Microcomputers	
TME 355 Applied Statistics for Engineering Technology	
Free Elective	
TOTAL HOURS	

Seventh Semester

EET 422 Electrical Power Systems I	
EET 425 Linear Systems II	
EET 451 Senior Design Project I	
MET 233 Thermal Science	
Population and the Environment Elective*	
Technical Elective	
TOTAL HOURS	

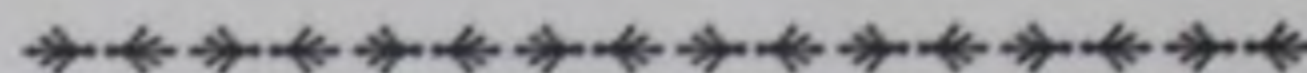
Eighth Semester

EET 423 Electrical Power Systems II	
EET 452 Senior Design Project II	
MET 484 Engineering Economics	
Human Values/Social Context Elective*	
Technical Elective	
TOTAL HOURS	

TOTAL CREDITS REQUIRED: 124

STUDENT MUST SEE ADVISOR FOR APPROVAL OF ALL ELECTIVES

Lists of approved Human Values/Social Context and Technical Electives are available in 221 East Annex.



CURRICULUM B.S. MECHANICAL ENGINEERING TECHNOLOGY

First Semester

COS 100 Introduction to Personal Computers	
ENG 101 College Composition	
MET 121 Technical Drawing	
PHY 107 Technical Physics I	
TME 151 Technical Mathematics I: Pre-calculus	
TOTAL HOURS	

* General Education Requirement Electives do not have to be taken in order shown.

(* General Education Requirement Electives do not have to be taken in order shown. One of the General Education Requirements must also satisfy the Ethics requirement of the General Education Requirements

Second Semester

MET 107 Machine Tool Laboratory I	2
MET 126 Machine Drawing	3
MET 150 Statics	3
PHY 108 Technical Physics II	4
TME 152 Technical Mathematics II: Pre-calculus and Introductory Calculus	3
TOTAL HOURS	15

Third Semester

MET 212 Machine Tool Laboratory II	2
MET 219 Strength of Materials	4
MET 233 Thermal Science	3
MET 270 Manufacturing Technology	3
TME 253 Applied Calculus for Engineering Technology	4
TOTAL HOURS	16

Fourth Semester

COM 103 Fundamentals of Public Communication	3
COS 215 Introduction to Computing using FORTRAN	3
INT 211 Introduction to CAM and Welding	2
MET 234 Mechanical Technology Laboratory I	2
MET 236 Thermal Applications	3
Western Cultural Tradition Elective*	3
TOTAL HOURS	16

Fifth Semester

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
EET 330 Electrical Applications	3
ENG 317 Business and Technical Writing	3
MET 317 Dynamics	4
Technical Elective	3
TOTAL HOURS	17

Sixth Semester

MET 325 Fluid Flow Technology	3
MET 355 Engineering Materials	3
TME 354 Ordinary Differential Equations with Engineering Applications	3
Cultural Diversity and International Perspectives Elective *	3
Technical Elective	3
TOTAL HOURS	15

Seventh Semester

MET 462 Design I	4
MET 471 Mechanical Technology Laboratory II	3
MET 484 Engineering Economics	3
Population and the Environment Elective *	3
Technical Elective	3
TOTAL HOURS	16

Eighth Semester

MET 463 Design II	4
Free Elective	3
Artistic and Creative Expression Elective *	3
Ethics Elective*	3
Technical Elective	3
TOTAL HOURS	16

TOTAL CREDITS REQUIRED: 127

STUDENTS MUST SEE ADVISOR FOR APPROVAL OF ALL ELECTIVES.

Lists of approved Human Values/Social Context and Technical Electives are available in 221 East Annex. At least two technical electives must be in MET.

(*) General Education Requirement electives do not have to be taken in order shown.

ENGLISH

Professor Wicks (Chairperson)

Professors Donovan, Everman, Ford, Hatlen, Jacobs, Hunting, Norris, Rogers

Associate Professors Bauschatz, Brinkley, Brogunier, Brucher, Burnes, Cowan, Evans, Kail, MacKnight, Mooney, Nees-Hatlen, J. Wilson

Assistant Professor Lukens

Lecturers Callaway, Hakola, Irvine, Pollet, Whelan

The Department of English offers a variety of courses in literature, writing and film, as well as specialized courses dealing with language and teaching. The skills these courses develop include reasoning, logical analysis, and persuasive communication, as well as an understanding of literary forms and literary and cultural history. An English major may go on to a number of fields, including teaching, publishing, or journalism, and English is also a valuable pre-professional major for such diverse fields as law, business, and federal service. English is very attractive as a double major, too, as communication skills are important in all other disciplines.

English majors may choose a regular literature program or may add a concentration in creative writing, expository writing or professional writing. The requirements for the English major, effective September 1995, are outlined below:

1. All English majors must demonstrate intermediate-level proficiency in a language other than English. Intermediate proficiency is met by passing two years of a college-level language course (for example, completing GER 204 or SPA 204) or by demonstrating equivalent proficiency in a second language through examination.
2. All majors must satisfy the B.A. requirement for junior-level writing proficiency by submitting two approved interpretive or analytic papers from advanced literature courses to their advisors. At least one paper must be submitted during the junior year. Papers must meet faculty standards for fluency, cogency, and grace in writing.
3. All majors must satisfy core requirements in literature and writing courses and complete 39 hours of work in English beyond ENG 101. Since the University of Maine requires 72 hours outside the major for graduation, most students may take a maximum of only 48 hours in English.

All English majors share the following core requirements:

6 hours:

Writing courses, including ENG 212 Persuasive and Analytic Writing and one course at the 300 level. (See following for particular 300-level requirements in writing concentration)

3 hours:

Foundations of Literary Analysis (ENG 270)

12 hours:

Survey in American Literature (ENG 241, ENG 242) and Survey in British Literature (ENG 251, ENG 252)

18 hours:

English courses at the 400 level:

Additional elective courses in English, including INT 410 (Introduction to the Study of Linguistics). (See below for particular 400-level course requirements in writing concentrations)

ENG 212 and ENG 270 are recommended for the sophomore year. It is advisable to begin a year-long survey in the sophomore year and take the second survey as a junior.

REQUIREMENTS FOR ELECTIVE WRITING CONCENTRATIONS

CREATIVE WRITING CONCENTRATION

Writing courses beyond ENG 101, usually include ENG 205 (Introduction to Creative Writing) or ENG 206 (Narrative and Descriptive Writing), ENG 307 (Writing Fiction) or ENG 308 (Writing Poetry). The 400-level courses usually include ENG 405 (Directed Writing) or ENG 406 (Advanced Creative Writing).

Submission and approval of a book-length manuscript (e.g. a novella, a collection of stories or poetry).

PROFESSIONAL WRITING CONCENTRATION

The writing course at the 300-level is usually ENG 317 (Business and Technical Writing). The 400-level courses include ENG 417 (Advanced Professional Writing) and/or ENG 418 (Topics in Professional Writing) and ENG 496 (Field Experience in Professional Writing).

EXPOSITORY WRITING CONCENTRATION

The 300-level writing course is usually chosen with advisement from among the following: ENG 301 (Advanced Composition), ENG 310 (Writing and Careers in English), ENG 317 (Business and Technical Writing), or ENG 395 (English Internship). The 400-level courses include ENG 401 (Topics in Writing).

GRADUATE STUDY

The Department of English offers the Master of Arts degree in English. Candidates for this degree may follow the regular literature program or choose a concentration in creative writing or in composition. Students in the literature program may choose either a thesis program of 30 hours (24 of course work and 6 of thesis) or a non-thesis program of not fewer than 30 hours of course work. Students in the creative writing concentration must take 15 hours of course work in literature courses and must complete a creative thesis for which they normally receive 6 hours of thesis credit. Students in the concentration in composition must take 15 hours of course work in literature and 15 hours of course work in rhetorical theory and the teaching of writing. They may elect a thesis option with 9 hours of coursework. For further details, see the Graduate School Catalog.

PLACEMENT IN WRITING COURSES

The Department of English requires a placement test of all students wanting to enroll in ENG 101, College Composition. The Department administers the test during each of the University's new student orientation sessions and also during the first two days of each semester. Their test performance awards some students credit by examination; it allows others to enroll in either the advanced or the regular division of the course; it prohibits a few from enrolling in ENG 101. Students in this last category are encouraged to enroll in ENG 001, Writing Workshop, in order to prepare for ENG 101.

FOOD SCIENCE AND HUMAN NUTRITION

Associate Professor Camire (Chairperson)
Professors A. Bushway, R. Bushway
Associate Professors Cook, Klimis-Tavantzis, White

The Department of Food Science and Human Nutrition is the only department in the State of Maine to provide both undergraduate and graduate education in food science and human nutrition, as well as cutting edge research and service to the people and food industries of Maine in these areas.

The undergraduate program leads to a Bachelor of Science degree in Food Science and Human Nutrition. Three concentrations are offered: Food Science, Human Nutrition, and Food Management. Each concentration prepares students for different careers in the area of food science and human nutrition.

A minor in Food Science is available with 18 credits of approved courses and a minor in Human Nutrition consisting of 15 credits above the introductory level courses is available to any student.

The Department of Food Science and Human Nutrition offers the Master of Science degree in a Food Science and Human Nutrition field while a Doctor of Philosophy may be earned in Food and Nutrition Sciences. In addition, an Approved Dietetic Internship is offered by the Department for M.S. students. Contact person: Department chair, 36 Holmes Hall, Orono, Maine 04469-5736, (207)581-1627; fax (207)581-1636; email: camire@maine.maine.edu.

TRANSFER POLICY

Students who wish to transfer from another B.S. program at the University of Maine, or another 4-year institution must have a minimum GPA of 2.5. Transfer students from 2-year Associate degree programs must have a minimum GPA of 3.0. Completion of degree requirements may take longer than 4 years for transfer students.

CONCENTRATION IN FOOD MANAGEMENT

Food Management provides a unique combination of food and business to prepare students for a wide variety of career flexibility in planning a curriculum to suit an individual's needs. Two specializations are available within this concentration: food service management and food industry management. Upon completion of basic requirements, students can choose professional electives that best prepare them for future employment.

Food service graduates can find employment in restaurants, hospitals, and school food service departments, as well as airline catering. Students who specialize in food industry management may be hired by companies who produce foods, food ingredients or processing equipment. Salespersons with technical expertise can readily find employment both in and outside of Maine. These salespersons demonstrate products or equipment for clients. Other opportunities exist in marketing and business management.

Scholarships are available through the department and college, as well as other organizations such as the National Restaurant Association and the National Association of College and University Food Service (NACUFS).

CONCENTRATION IN FOOD SCIENCE

The concentration in Food Science is approved by the Institute of Food Technologists (IFT). Food Science majors are eligible for \$1000–\$2500 scholarships from IFT and major food companies. Several Food Science scholarships are available from the Department and the College. University of Maine students have also received

scholarships worth approximately \$1000 from the Northeast Section of IFT. These scholarships are based upon scholastic ability, extracurricular activities, and interests.

Graduates of the Food Science program will find jobs not only in Maine, but throughout the United States, Canada, and the World. All Department graduates have been successfully placed in food companies or in graduate schools. Many food scientists choose to obtain graduate degrees. Further studies in Food Science are available within the Department and at universities around the country.

Graduates find employment in the Food Industry in entry level technical (food process engineering and product development) or supervisory (quality assurance manager or distribution manager) positions. Government positions are available with the U.S. Department of Agriculture and Food and Drug Administration.

CONCENTRATION IN HUMAN NUTRITION

The concentration in Human Nutrition is approved by the American Dietetic Association. After graduation students are eligible to apply for dietetic internships or Approved Preprofessional Practice Programs (AP-4). Upon successful completion of one of these programs students may then take the national exam to become a Registered and/or Licensed Dietitian. Students who choose not to become Registered Dietitians or pursue graduate studies may find employment as Dietetic Technicians or Assistants.

Human Nutrition provides professional preparation for those who want to become Registered and/or Licensed Dietitians, Nutrition Scientists, Nutrition Educators, Public Health/Community Nutritionists, Food Service Administrators, and Nutrition Consultants in private practice. Employment opportunities exist in health, wellness, and community programs, hospital dietetics, (administrative, clinical, and community), private practice, home health care, government, food service, food industry, health oriented organizations (American Heart Association, American Cancer Society), and research laboratories.

Competitive scholarships are available within the College and through professional organizations such as the Maine Dietetic Association and the American Dietetic Association.

GRADUATION REQUIREMENTS

All FSN majors must achieve a minimum grade of C (2.0) in FSN courses. Human Nutrition students must take FSN 401, FSN 410, and FSN 420. No Substitutions will be permitted for these classes.

FOOD SCIENCE AND HUMAN NUTRITION B.S. DEGREE REQUIREMENTS

Core Curriculum

Basic Sciences

BIO 100 Basic Biology	4
BMB 221 Organic Chemistry	3*
BMB 221L Organic Chemistry Lab	1*
OR	
CHY 251/253 Introduction to Organic Chemistry/Laboratory	4

*Recommended, but not required for Food Management
BMB 322 Biochemistry 3*

BMB 322L Biochemistry Lab	1*
OR	
CHY 252/CHY 254 Chemical Reactivity I-Organic Chemistry / Laboratory	4
CHY 121 General Chemistry I	3
CHY 123 General Chemistry Lab	1
Total Hours	16

Mathematics

COS 100 Introduction to Personal Computers	3
MAT 122 Pre-Calculus	4**
MAT 232 Principles of Statistical Inference	3
Total Hours	10

Communications

ENG 101 College Composition	3
ENG 317 Technical Writing	3
COM 103 Fundamentals of Public Communication	3
Total Hours	9

Economics and Business

BUA 325 Principles of Management and Organization	3
INT 110 Modern Economic Problems	3
Total Hours	6

Orientation

NFA 117 Issues and Opportunities	1
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Food Science and Human Nutrition

FSN 101 Introduction to Food and Nutrition	3
FSN 270 World Food and Nutrition	3
FSN 330 Introduction to Food Science	3
FSN 340 Food Processing Laboratory	1
FSN 436 Food Law	3
Total Hours	13

General Education

Artistic and Creative Expression	3
Western Cultural Tradition	3
Cultural Diversity (met by FSN 270)	3
Social Context and Institution (met by INT 110, PSY 100 and SOC 101)	3
Population and the Environment	3
Ethics	3

Total Hours **18**

Core Curriculum Total **72**

*Human Nutrition****

BIO 208 Anatomy and Physiology	4
BIO 377 Animal Physiology	3
BMB 300 General Microbiology	3
OR	
FSN 238 Applied Food Microbiology and Sanitation	3
CHY 122 Molecular Basis of Chemical Change	3
CHY 124 Molecular Basis of Chemical Change Laboratory	1
FSN 103 Science of Food Preparation	3

FSN 200 Quality Food Production	1*
FSN 201 Food Service Systems Management	
FSN 301 Life Cycle Nutrition	
FSN 382 Introductory Food Chemistry	4
FSN 401 Community Nutrition	3
FSN 410 Human Nutrition and Metabolism	1
FSN 420 Nutrition in Disease and Diet Therapy	16
PSY 101 General Psychology	
SOC 101 Introduction to Sociology	
Total	49

Food Management

BUA 201 Principles of Accounting I	
BUA 202 Principles of Accounting II	
REP 454 Introduction Production Economics	
REP 458 Principles of Resource Business Management	
REP 459 Resource Based Business Finance	
FSN 103 Science of Food Preparation	
FSN 200 Quantity Food Production	
FSN 201 Food Service Systems Management	
FSN 238 Applied Food Microbiology and Sanitation	
FSN 489 Senior Project	

Total

Plus 11 credits of professional electives

Food Science

BMB 300 General Microbiology	
BMB 305 General Microbiology Laboratory	
BRT 369 Processing Technology	
CHY 122 Molecular Basis of Chemical Change	
CHY 124 Molecular Basis of Chemical Change Laboratory	
FSN 382 Introductory Food Chemistry	
FSN 438 Food Microbiology	
FSN 489 Senior Project	
FSN 502 Food Processing	
FSN 587 Food Analysis	
MAT 126 Calculus I	
MAT 127 Calculus II	
PHY 111 General Physics I	

Total

Plus 11 credits of professional electives

An additional 9-15 credits of professional electives are required for Food Management and Food Science. Suggested courses include:

FSN 301 Life Cycle Nutrition	
FSN 401 Community Nutrition	
FSN 438 Food Microbiology	
FSN 502 Food Processing	
FSN 585 Sensory Evaluation of Foods	
BUA 220 The Legal Environment of Business	
BUA 378 Marketing Research	
BUA 382 Consumer Behavior	
FSN 396 Independent Studies	
FSN 397 Field Experience	
FSN 410 Human Nutrition and Metabolism	
FSN 420 Nutrition in Abnormal Conditions	
INT 482 Pesticides and the Environment	
SMS 211 Introduction to Aquaculture	

Other courses may be substituted with permission of advisor.

TOTAL CREDITS REQUIRED: 120

**This requirement may be satisfied by examination, or by a higher level mathematics course, with permission of the undergraduate advisor. Students who are not sufficiently prepared in mathematics may take non-credit preparatory courses in algebra through the Onward Special Services Program (581-2320).

***Communications curriculum for Pre-Dietetic Intern approved by the American Dietetic Association and recommended for all dietitians. The University provides personal and automobile liability insurance for students who are on field trips or field experience.

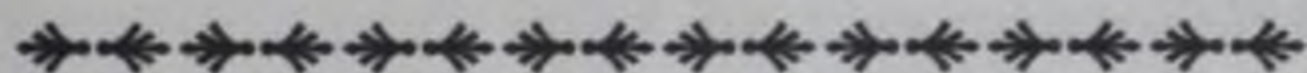
FOREST ECOSYSTEM SCIENCE

Professor Jagels (Chairperson)
Professors Greenwood, Seymour, Wiersma
Associate Professors Carter, Livingston, White
Faculty Associates Brissette, Frank, Percy, Van Deusen
Cooperators Alford, Campbell, Cole, Cronan, Fernandez, Hutchison, Jellison, McLaughlin, Ostrofsky, Woods

As pressures intensify among competing interests for use of the world's resources, society is becoming increasingly aware of how valuable forest ecosystems are for protecting the economic and biological health of our planet. Unraveling the biological complexity of forest ecosystems relies on a strong foundation of knowledge in the natural sciences. To that end, the undergraduate bachelor of science degree program in Forest Ecosystem Science (FES) is designed to provide students with the breadth and depth of understanding required to become active participants in promoting the sustainability of our forests in the future.

The FES program is a new partner to the long established forestry program at the University of Maine. While the Forestry program focuses on the management of forests, the FES program emphasizes the biology of forest ecosystems from the molecular to the biosphere level. Examples of career opportunities which may be open to graduates of the FES program include monitoring and assessment of forest ecosystems, consulting on environmental issues, working with forest scientists doing research in private or public forests, and pursuing graduate studies in such areas as ecology, silviculture, forest health, tree improvement, or tree physiology.

The Forest Ecosystem Science curriculum requires a total of 120 credit hours. Core courses in forest resources cover topics such as forest biology, forest ecology, and silviculture. Supporting courses in basic sciences and mathematics are required in areas such as botany, chemistry, and statistics. Students in the FES program select additional elective courses to develop depth in areas such as applied forest ecology, forest health, forest soils, plant genetics, anatomy and physiology. General Education Requirements for other subjects in the humanities and social sciences are also to be included among the elective credits.



SUGGESTED CURRICULUM B.S. in FOREST ECOSYSTEM SCIENCE

First Year

First Semester

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
FES 100 Introduction to Forest Biology	4
FTY 101 Introduction to Forest Resources	2
Elective	2
TOTAL HOURS	16

Second Semester

CHY 122 Molecular Basis of Chemical Change	3
CHY 124 Molecular Basis of Chemical Change	1
ENG 101 College Composition	3
FTY 105 Introduction to Forest Measurements	3
MAT 151 Calculus for Life Sciences	4
Electives	6
TOTAL HOURS	16

Sophomore Year

Third Semester

BIO 202 The Plant Kingdom	4
BIO 233 Dendrology	3
CHY 251 Organic Chemistry I	3
Electives	4

TOTAL HOURS **14**

Fourth Semester

AES 140 Soil Science	3
AES 141 Soil Science Lab	1
INT 256 Tree Pests and Disease	4
INT 319 General Ecology	3
Electives	3

TOTAL HOURS **14**

Junior Year

Fifth Semester

BIO 452 Plant Physiology	3
BIO 453 Plant Physiology Lab	1
FES 407 Forest Ecology	3
FES 408 Silviculture	3
FES 409 Forest Ecology and Silviculture lab	2
Electives	3

TOTAL HOURS **15**

Sixth Semester

BIO 445 Plant Genetics	3
FES 416 Wood Anatomy	3
FTY 457 Forest Watershed Management	3
INT 110 Modern Economic Problems	3
Electives	3

TOTAL HOURS **15**

Senior Year

Seventh Semester

FES 498 Senior Research I	2
MAT 232 Principles Statistical Inference	3
PHY 111 General Physics I	4
Electives	6

TOTAL HOURS **15**

Eighth Semester

FES 499 Senior Research II	2
INT 323 Introduction to Conservation Biology	3
Electives	10

TOTAL HOURS **15**

TOTAL CREDITS REQUIRED: 120

FOREST MANAGEMENT

Professor Field (Chairperson)
Professors Brann, Goodell, Sader, Shepard
Associate Professors Kimball, Murdoch, Rice, Shaler
Assistant Professor Tynon
Instructor Morin
Faculty Associates Coffman, Irland, Solomon, Vicary
Cooperating Faculty Genco, Lilley, McLaughlin, Mitchell, Philp, Seymour

BACHELOR OF SCIENCE IN FOREST ENGINEERING

Professors Brann, Field (Program Co-Administrator), Sader
Associate Professors Christensen, Hedstrom, Riley, Soule (Program Co-Administrator)
Assistant Professors Donahue, Seymour

The Forest Engineering curriculum, a joint administrative responsibility of the Bio-Systems Engineering program and the Department of Forest Management, combines study in engineering and mathematics, the physical sciences, and forestry to provide a unique background so that students may solve engineering problems and produce engineering designs in the field of forestry while following careers emphasizing the design, planning, and management of tree harvesting systems, logging equipment, and environmental engineering in general.

The curriculum is designed to foster in each student the capability to solve the problems of society that are susceptible to engineering treatment; to develop in the student a sensitivity to socially related technical problems; to help the student develop a sense of professionalism and the habit of ethical conduct; to help the student develop an understanding of the engineer's responsibility to protect the public health and safety; and to instill a desire in the student to maintain professional competence through lifelong learning. The basic curriculum, combined with electives in the humanities and social sciences, and culminating with an engineering design experience, provides a broad base of knowledge for engineering.

Forest engineering is engineering in a natural environment. Forest engineers are involved in reforestation methods, systems for wood production and harvesting, handling and transportation, forest road systems, design of improvised bridges, soil-water control, and conservation and recreational development.

A unique feature of the forest engineering curriculum is that it provides the academic background necessary for full association with both professional engineering and forestry societies. Founded upon intensive study in the physical and natural sciences, the professional subject matter contained in the program is directed toward off-campus as well as on-campus study. The realities encountered in the use of mechanized logging equipment in a natural environment are recognized as the inherent constraints imposed by the interaction of technology, biology, and social order.

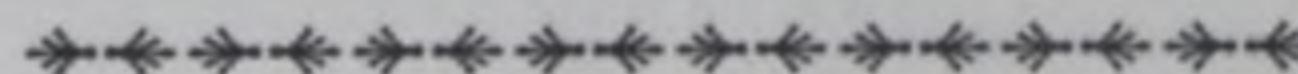
In addition to basic engineering and forestry courses, four specific areas of forest engineering are dealt with: forest machinery, soil and water control, forest roads and structures, and logging systems planning.

Graduates may find employment as forest engineers with companies producing forest machinery and equipment, with pulp and paper and lumber firms, and with federal and state agencies. Positions are open in research and development work, or in direct wood production and processing fields. Opportunities are nationwide in this area.

The curriculum in forest engineering is a joint offering of the Colleges of Engineering, and of Natural Sciences, Forestry and Agriculture. It is accredited by the Society of American Foresters and

the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

The curriculum requires completion of 137 degree hours (including three degree hours in Forestry Field Practice) at an accumulative degree point average of not less than 2.0.



CURRICULUM B.S. in FOREST ENGINEERING

Basic Sciences and Math

AES 150 Forest Soils
CHY 121 Introduction to Chemistry
CHY 123 Introduction to Chemistry Lab
INT 256 Tree Pests and Disease
MAT 126 Calculus I
MAT 127 Calculus II
MAT 228 Calculus III
MAT 232 Principles of Statistical Inference
MAT 258 Differential Equations/Linear Algebra
PHY 121 Physics for Engineers and Physical Scientists I
PHY 122 Physics for Engineers and Physical Scientists II
TOTAL HOURS

Basic Engineering

FTY 208 Forest Surveying and Mapping
MEE 230 Thermodynamics
MEE 252 Statics and Strength of Materials
MEE 270 Applied Mechanics: Dynamics
MEE 360 Fluid Mechanics
OR
CIE 350 Hydraulics
ECE 210 Electrical Networks I
TOTAL HOURS

Forest Engineering

BRE 121 Introduction to Bio-Resource Engineering
BRE 122 Fundamentals of Bio-Resource Engineering
BRE 255 Materials in Bio-Resource Engineering
BRE 460 Power and Machinery
BRE 462 Power Transmission and Control
BRE 465 Soil and Water Engineering
BRE 492 Design Project
FOE 206 Photogrammetry and Remote Sensing
FOE 453 Harvesting of Forest Crops
FOE 473 Forest Roads and Structures
TOTAL HOURS

Forestry

FES 407 Forest Ecology
FES 408 Silviculture
FES 409 Forest Ecology and Silviculture Field Laboratory
FTY 105 Introduction to Forest Measurements

TY 241 Field Practice in Forest Management	3
TY 355 Forest Inventory and Growth	3
TY 444 Forest Resources Economics	4
TY 446 Forest Resources Policy	3
TY 466 Timber Management	2
TY 485 Forestry Administration	2
TOTAL HOURS	28

General Education Requirements	21
TOTAL HOURS	21

TOTAL CREDITS REQUIRED: 134

BACHELOR OF SCIENCE IN FORESTRY

Professors Brann, Field (Program Administrator), Goodell, Greenwood, Jagels, Sader, Seymour, Shepard, Wiersma
Associate Professors Carter, Kimball, Livingston, Murdoch, Rice, Shaler, White
Assistant Professor Tynon
Instructor Morin
Cooperating Faculty Mitchell

Forestry is an applied science that involves managing forest ecosystems within increasingly complex social environments. It combines forest ecosystem sciences, management sciences, and communications skills for managing forest resources to meet society's ever increasing needs for commodities, services, and a healthy environment.

A forester is a professional who must understand the many different aspects of managing natural and human elements of forest systems. Forestry requires a broad education. Biological and physical sciences deal with the complex interactions of forest ecosystems. Social sciences provide understanding of how humans value forest conditions and forest-based products and services. Management sciences help foresters to match human needs and desires with the sustainable capabilities of forests. A forestry student faces a challenging and stimulating education.

The University of Maine has the longest, continuously-credited professional forestry program in the United States. The four-year curriculum and the Master of Forestry program are the only university of Maine System programs that are accredited by the Society of American Foresters and that meet Maine's Licensed Professional Forester education requirements. The goal of the Bachelor of Science degree program at the University of Maine is to combine instruction in 1) the basic sciences and liberal arts that are fundamental to a college education, 2) practical forestry skills that will allow a graduate to compete for entry-level positions, and 3) fundamentals of applied forest resources and management sciences which graduates can build throughout their careers.

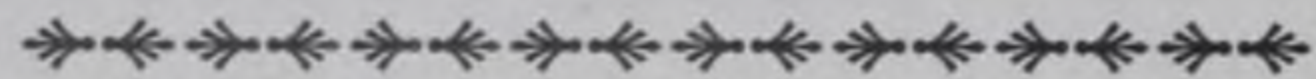
The curriculum requires completion of 128 credits of coursework. In addition to the University's general education requirements in science, human values, communications, mathematics, and ethics, the curriculum includes forest-oriented courses in biology, soil science, measurements, mapping, inventory, protection, ecology, tree culture, economics, policy, and administration. These are combined into an integrated approach to management of forests for desired, sustainable conditions that respond to society's demands for a healthy forest environment, forest-based products, wildlife habitat, recreational opportunities, and water resources.

The Forestry program at the University of Maine retains a strong field orientation. Training in a forest setting begins with the first semester. The University's 1270-acre Dwight DeMeritt Forest is adjacent to the campus. Together with the nearby Penobscot Experimental Forest, this property is part of nearly 10,000 acres of forest land, owned by the University, that provide living laboratories for forestry education and research. Large areas of public and private,

industrial, and nonindustrial forest land near the University provide additional opportunities. Students are strongly encouraged to take advantage of the numerous opportunities for summer employment with public and private land-management organizations.

Students in the Forestry program have an opportunity to study, interact, and often work with the large number of graduate students from around the world who have been attracted to forest-related studies at the University of Maine. Because most of the forestry faculty are involved in active research programs, as well as teaching, students learn from teachers who, themselves, continually explore and extend the latest knowledge in their areas of forest science.

The Forestry program provides a very broad education that allows foresters to seek employment in a wide range of positions, but most work with some aspect of forest resources management. Federal agencies, such as the United States Forest Service, the Bureau of Land Management, and the National Park Service employ many foresters. State natural resources agencies hire foresters to manage state forest lands and to provide advice to owners of small woodland properties. Non-governmental conservation organizations employ foresters to further the interests of their programs. Especially in Maine, which has more industrial forest acreage than any other state, forest industry is a major employer. An increasing number of forestry graduates become independent consultants, serving mostly nonindustrial private forestland owners such as the thousands who own about half of Maine's timberland.



CURRICULUM B.S. in FORESTRY

First Year

First Semester

ENG 101 College Composition	3
FES 100 Introduction to Forest Biology	4
FTY 101 Introduction to Forest Resources	2
INT 110 Modern Economic Problems	3
MAT 151 Calculus for Life Sciences I	4
TOTAL HOURS	16

Second Semester

COM 103 Fundamentals of Public Communication	3
FTY 105 Introduction to Forest Measurements	3
MAT 232 Principles of Statistical Inference	3
Electives	6
TOTAL HOURS	15

May Term:

FTY 241 Field Practice in Forest Management	3
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Sophomore Year

Third Semester

BIO 233 Dendrology	3
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
FTY 208 Forest Surveying and Mapping	3
WSC 314 Wood and Wood Fiber Processing	4
OR	
WSC 212/213 Wood Technology I/Hand Lens Identification of Wood	4
Elective	3
TOTAL HOURS	17

Fourth Semester

FOE 206 Photogrammetry and Remote Sensing	3
FTY 480 Applied Geographic Information Systems	3
INT 256 Tree Pests and Diseases	4
CHY/PHY Chemistry/Physics Elective- (CHY 132 and higher/PHY 107 and higher)	
WLE 230 Introduction to Wildlife Conservation	3
TOTAL HOURS	17

Junior Year

Fifth Semester

AES 150 Forest Soil Science	3
FES 407 Forest Ecology	3
FES 408 Silviculture	3
FES 409 Forest Ecology and Silviculture Field Lab	2
PRT 352 Forest Recreation Management	3
TOTAL HOURS	14

Sixth Semester

FOE 453 Timber Harvesting	3
FTY 355 Forest Inventory and Growth	3
FTY 457 Forest Watershed Management	3
FTY 466 Timber Management	2
Elective	3
TOTAL HOURS	14

Senior Year

Seventh Semester

FTY 444 Forest Resources Economics	4
FTY 465 Woodlot Management	2
Electives	9
TOTAL HOURS	15

Eighth Semester

FTY 446 Forest Resources Policy	3
FTY 475 Forest Ecosystem Management	3
FTY 485 Forestry Administration	2
Electives	9
TOTAL HOURS	17

TOTAL CREDITS REQUIRED: 128

BACHELOR OF SCIENCE IN PARKS, RECREATION AND TOURISM

*Assistant Professor Tynon
Cooperating Faculty Mitchell*

The Bachelor of Science program in Parks, Recreation, and Tourism is coordinated by the Department of Forest Management in the College of Natural Sciences, Forestry and Agriculture. The PRT curricula offer students professional education in natural and cultural resource-based outdoor recreation and tourism.

Changing social phenomena associated with leisure experiences, energy problems, population distributions, socioeconomic status, and land use are creating a favorable demand for personnel trained in the management of recreation and tourism resources. Employment opportunities are expected to maintain a modest but steady increase over the next several years, especially in the tourism field.

PRT Program objectives include linking social and natural resources in ways that provide opportunities for quality user experiences in outdoor recreation and tourism environments. To meet the requirements of this baccalaureate degree program, students take a basic core of courses in mathematics and computer science,

biological sciences, basic sciences, social sciences, and communication. Additional technical and professional courses in area of specialization are necessary to fulfill the requirements for B.S. degree in Parks, Recreation and Tourism



SUGGESTED CURRICULUM B.S. IN PARKS, RECREATION AND TOURISM

Core Requirements

Mathematics: Credits 6

- MAT 122 Pre-Calculus
- MAT 232 Principles of Statistical Inference

Computer Science: Credits 3

- COS XXX Computer Science Elective

Biological Science: Credits 13

- BIO 233 Dendrology
- FES 100 Introduction to Forest Biology
- INT 323 Conservation Biology
- WLE 200 Ecology

Basic Sciences: Credits 7 - 8

- GES 101 Introduction to Geology
- CHY 121 Introduction to Chemistry
- OR
- PHY 105 Descriptive Physics

Social Sciences and Humanities: Credits 21

- BUA 325 Principles of Management and Organization
- ECO 120 Principles of Microeconomics
- ECO 121 Principles of Macroeconomics
- PAA 200 Public Management
- POS 100 American Government
- SOC 101 Introduction to Sociology
- SOC XXX Sociology Electives

Communication: Credits 15

- COM 103 Fundamentals of Public Communication
- COM XXX Communication and Journalism Electives
- ENG 101 College Composition
- ENG 317 Technical Writing

Professional Preparation: Credits 26

- FTY 349 Principles of Forest Management
- FTY 480 Applied Geographic Information Systems
- PRT 225 Readings in Outdoor Recreation
- PRT 352 Forest Recreation Management
- PRT 452 Environmental Interpretation
- PRT 470 Principles of Tourism
- REP XXX Resource Economics and Policy Elective
- WLE 230 Introduction to Wildlife Conservation

Free Electives: Credits 16-17

TOTAL HOURS

Areas of Concentration

Select one concentration:

Management Concentration: Credits 18

- LHC 429 Park Planning and Design
- PRT 355 Visitor Behavior and Management
- PRT 471 Commercial Recreation
- PRT 480 Wilderness and Wild and Scenic River Management

UA 331 Labor-Management Relations	3
AA 340 Public Budgeting and Financial Administration	3
AA 350 Public Workforce Development	3
AA 430 Institutional Change	3

Interpretation Electives: Credits 18

NT 170 Popular Archaeology	3
NT 221 Introduction to Folklore	3
O 205 Field Natural History of Maine	3
IT 355 Visitor Behavior and Management	3
IT 454 Cultural Resource Management	3
IT 480 Wilderness and Wild River Management	3
LE 260 (May Term) Field Ornithology	3

Business Concentration: Credits 18

JA 201 Principles of Accounting I	3
JA 220 Legal Environment of Business	3
JA 350 Business Finance	3
JA 370 Marketing	3
JA XXX Business Elective	3
T 471 Commercial Recreation	3

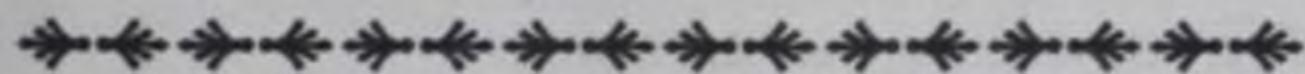
MINIMUM HOURS REQUIRED: 124

BACHELOR OF SCIENCE IN WOOD SCIENCE AND TECHNOLOGY

Professors Goodell, Jagels
Associate Professors Rice (Program Coordinator), Shaler
Cooperating Faculty Genco, Philp

Wood Science and Technology is the study of wood materials, which focuses on the physical, chemical, and mechanical properties of wood. The practical aspects of forest products manufacture and production are also stressed. The curriculum combines the study of basic sciences, mathematics, forestry, the properties and basic structural components of wood, and the conversion and distribution of wood-based products. Students choose between options/minors in business, science, engineering, or a combination of these areas, while majoring in Wood Science and Technology.

An off-campus training phase of this program provides for summer employment experience in the field of forest products, including a comprehensive report as an alternative to Summer session course FTY 241.



CURRICULUM B.S. in WOOD SCIENCE AND TECHNOLOGY

First Year

<i>First Semester</i>	
CHY 121/123 Introduction to Chemistry/Lab	4
ENG 101 College Composition	3
FTY 101 Introduction to Forest Resources	2
MAT 126 Calculus I	4
Elective	3
TOTAL HOURS	16
<i>Second Semester</i>	
BIO 201 Plant Biology/Lab	4
CHY 132/134 Applications of Chemistry/Lab	4
FTY 105 Introduction to Forest Measurements	3
MAT 127 Calculus II	4
TOTAL HOURS	15

Sophomore Year

Third Semester

BIO 233 Dendrology	3
BMB 221 Organic Chemistry	3
PHY 111 General Physics I	4
WSC 212/213 Introduction to Wood Science and Technology I / Hand Lens Identification of Wood	4
Elective	3
TOTAL HOURS	17

Fourth Semester

COM xxx Public Speaking Elective	3
MAT 232 Principles of Statistical Inference	3
PHY 112 General Physics II	4
WSC 416 Wood Anatomy	3
Elective	3
TOTAL HOURS	16

WST 396 - Field Experience (3 cr) must be taken following either the Sophomore or the Junior year.

Junior Year

Fifth Semester

COS xxx Computer Science Elective	3
WSC 425 Mechanical Properties of Wood	4
WSC 314 Wood and Wood Fiber Processing	4
Elective	4
TOTAL HOURS	15

Sixth Semester

CHY 455 Wood Chemistry	3
ENG xxx English Writing Elective	3
REP 148 Principles of Agricultural Economics	3
Electives	6
TOTAL HOURS	15

Senior Year

Seventh Semester

BUA 201 Principles of Accounting I	3
OR	
FTY 540 Forest Products Marketing	3
WSC 318 Wood and the Environment	3
WSC 319 Wood Deterioration and Protection	3
Elective (Technical)	4
Elective	3
TOTAL HOURS	16

Eighth Semester

FTY 444 Forest Resources Economics	4
WSC 430 Wood Composites and Adhesives	3
Elective (Technical)	3
Elective	3
TOTAL HOURS	13

TOTAL CREDITS REQUIRED: 125

GEOLOGICAL SCIENCES

Professor Norton (Chairperson)

Professors Belknap, Borns, Chernosky, Decker, Denton, Guidotti, Hughes, T. Kellogg, Lux

Assistant Professors Maasch, Reeve, Spencer-Cervato, Wright

Research Professors Almquist-Jacobson, Grew, D. Kellogg

Associate Scientists Kahl, Yates

Adjunct Professors Hooke, J. Kelley

Faculty Associates Berry, Loiselle, Marvinney, Thompson, Weddle

Instructor A. Kelley

Cooperating Professor Schnitker

The geological sciences are concerned with the physical and chemical characteristics of minerals, rocks, ice and water, with their occurrence, arrangement, and surface expression, and with the history of the Earth and its inhabitants. The curriculum provides for a basic understanding of the geological sciences and is sufficiently flexible to allow students with interests in environmental geology, geochemistry, geophysics, paleontology, and oceanography to pursue additional courses in appropriate ancillary sciences.

The Department of Geological Sciences offers a wide variety of courses for the undergraduate non-major who is looking for interesting courses to satisfy the General Education Science requirements (basic and applied or applications) and/or has an interest in geological sciences, natural resources, global change and the environment. Additionally, several introductory level courses are supportive of other undergraduate majors such as Civil and Environmental Engineering, Spatial Information Engineering, Natural Resources, Science Education, Anthropology, and Applied Ecology and Environmental Sciences. Introductory level courses are: GES 100, GES 101, GES 102, GES 103, GES 104, GES 105, GES 106 and GES 109.

GES 103, GES 104 and GES 109 may not be counted as upper level electives for majors in the Geological Sciences. Electives in the major must be GES 2xx or higher.

Complete course descriptions are in the "Course Description" section of this catalog. Refer to the Index.

A B.S. geology graduate is prepared to enter directly into industry or survey work, or to enter graduate school in geological sciences. In addition, if BIO 204, CHY 251/252, CHY 253/254 and BIO 100 are taken, the requirements for medical or dental schools are met.

The requirements for the Bachelor of Science degree include: GES 101 or 102 or 106; GES 314, GES 315, GES 330, GES 331, GES 332, GES 333, GES 416, GES 417, two elective geological sciences courses above 1XX, MAT 126/127, MAT 232, CHY 121 and 122 (plus laboratory courses CHY 123 and 124), PHY 111/112 or 121/122, and COS 215 or COS 220. An approved summer field course is required between the junior and senior years.

The requirements for the Bachelor of Arts degree include GES 101 or GES 102 or GES 106; GES 314, GES 315, GES 330, GES 331, GES 332, GES 333, GES 416, one elective geological sciences course above 1XX, MAT 126, COS 100 or higher, PHY 111 or PHY 121, CHY 121 (plus laboratory course CHY 123), and 1 year of an intermediate level foreign language. An approved summer field course is required between the junior and senior year. For students contemplating graduate work in geological sciences, mathematics through MAT 228 and proficiency in French, German, or Russian is recommended.

The specimen curriculum is somewhat flexible and may be altered for individuals with previous geological training. Special interdisciplinary programs may be arranged after consultation with the departmental undergraduate advisor.



CURRICULUM B.S. in GEOLOGICAL SCIENCES

First Year

First Semester

GES 101 Introduction to Geology
OR
GES 102 Environmental Geology of Maine
CHY 121 Introduction to Chemistry
CHY 123 Introduction to Chemistry Laboratory
ENG 101 College Composition (if necessary)
OR
Elective
Elective (or MAT 126)

14 or

Second Semester

CHY 132 Applications of Chemistry
CHY 134 Applications of Chemistry Laboratory
GES 102 Environmental Geology of Maine
OR
GES 105 The Earth Through Time
MAT 232 Principles of Statistical Inference
Elective

Sophomore Year

First Semester

GES 330 Mineralogy
MAT 126 Calculus I
PHY 111 General Physics I
OR
PHY 121 Physics for Engineers and Physical Scientists I
Elective

Second Semester

GES 331 Optical Mineralogy
GES 332 Modern Analytical Techniques
MAT 127 Calculus II
PHY 112 General Physics II
OR
PHY 122 Physics for Engineers and Physical Scientists II
Elective

Junior Year

<i>1st Semester</i>	
COS 215 Introduction to Computing Using FORTRAN	3
OR	
COS 220 Introduction to Computer Science	
GES 315 Principles of Stratigraphy	4
GES 333 Igneous and Metamorphic Petrology	4
Elective	3 or 4
Elective	3 or 4
	<hr/>
	17 or 19

<i>2nd Semester</i>	
GES 314 Invertebrate Paleontology	3
GES XXX Elective	4
Elective	3 or 4
Elective	4
Elective	4
	<hr/>
	14 or 15

Senior Year

<i>1st Semester</i>	
GES 416 Introduction to Structural Geology	4
GES 417 Introduction to Geophysics	4
Elective	4
Elective	3 or 4
	<hr/>
	15 or 16

<i>2nd Semester</i>	
GES Elective	4
Elective	4
Elective	4
Elective	3 or 4
	<hr/>
	15 or 16

Sophomore Year

<i>First Semester</i>	
GES 330 Mineralogy	4
PHY 111 General Physics I	4
OR	
PHY 121 Physics for Engineers and Physical Scientists I	
Elective	4
Elective	3
	<hr/>
	15

<i>Second Semester</i>	
GES 331 Optical Mineralogy	3
MAT 126 Calculus I	4
Elective	4
Elective	3
Elective	3
	<hr/>
	17

Junior Year

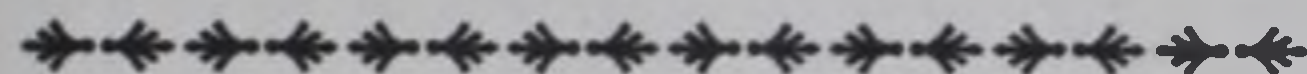
<i>First Semester</i>	
GES 315 Principles of Stratigraphy	4
GES 333 Igneous and Metamorphic Petrology	4
Intermediate Modern Language	4
Elective	3 or 4
	<hr/>
	15 or 16

<i>Second Semester</i>	
GES 314 Invertebrate Paleontology	3
GES 332 Modern Analytical Methods	1
Intermediate Modern Language	4
Elective	3
Elective	3 or 4
	<hr/>
	14 or 15

Senior Year

<i>First Semester</i>	
GES Elective	4
GES 416 Introduction to Structural Geology	4
Elective	4
Elective	3
	<hr/>
	15

<i>Second Semester</i>	
Elective	3
Elective	3
Elective	4
Elective	4
	<hr/>
	14



CURRICULUM B.A. in GEOLOGICAL SCIENCES

First Year

<i>1st Semester</i>	
PHY 121 Introduction to Chemistry	3
PHY 123 Introduction to Chemistry Laboratory	
GES 101 Introduction to Geology	4
OR	
GES 102 Environmental Geology of Maine	4
Elective	3
Elective	4
	<hr/>
	14

<i>2nd Semester</i>	
COS 100 Introduction to Personal Computers	3
ENG 101 College Composition	3
GES 102 Environmental Geology	4
OR	
GES 105 The Earth Through Time	4
Elective	4
	<hr/>
	14

INTERNATIONAL AFFAIRS

A student in the College of Liberal Arts and Sciences may major in International Affairs in anthropology, economics, history, modern languages or political science.

During the first two years, the student of International Affairs should take courses which help to fulfill the University's General Education requirements. Among such courses are ANT 102 Introduction to Anthropology: The Diversity of Culture, ECO 120 Principles of Microeconomics and ECO 121 Principles of Macroeconomics, HTY 106 History of European Civilization II, or HTY 107/108 Asian Civilization, POS 100 American Government, and intermediate or upper level courses in a modern foreign language. Students should consult also with International Affairs advisors in the participating departments regarding other courses they might take. To enter the junior year of the International Affairs program students must have earned the minimum grade point average of 2.0 or have received permission from the department in which they intend to major.

BASIC REQUIREMENTS

INTERNATIONAL AFFAIRS IN ANTHROPOLOGY

A. At least thirty (30) hours in Anthropology, including ANT 101, ANT 102, ANT 300, ANT 317, and 18 hours chosen from the following list of courses with an international focus:

- ANT 120 Religions of the World
 - ANT 441 People and Cultures of the Pacific Islands
 - ANT 445 Gender and Anthropology
 - ANT 452 Civilization in South Asia
 - ANT 453 People and Cultures of Mesoamerica
 - ANT 454 Cultures and Societies of the Middle East
 - ANT 456 Ethic Conflict in the Modern World
 - ANT 459 People and Cultures of South America
 - ANT 464 Cultural Ecology
 - ANT 465 Political Anthropology
 - ANT 466 Economic Anthropology
 - ANT 467 Peasant Studies
 - ANT 470 Religion and Politics
 - ANT 481 Language and Culture
 - GEO 450 Historical Geography of Canada
- ANT 101, ANT 102, ANT 300, AND ANT 317 must be passed with a grade of "C-" or higher.

B. At least nine (9) hours each in economics, history, and political science from among the following courses:

1. Economics
 - ECO 120 Principles of Microeconomics
 - ECO 121 Principles of Macroeconomics
 - ECO 331 Global Economics
 - ECO 335 History of Economic Thought
 - ECO 336 Marxian Economics
 - ECO 337 Comparative Economic Systems
 - ECO 338 Economic Development
 - ECO 340 Canadian Economics: Issues and Policies
 - ECO 347 Canadian Labor Market
 - ECO 439 International Trade and Commercial Policy

2. History

- A maximum of 6 credits at the 100-level is allowed.
- HTY 105/106 History of European Civilization
 - HTY 107/108 Asian Civilization
 - HTY 109 Introduction to Latin America
 - HTY 407 The Age of Revolution: 1789-1860
 - HTY 408 The Age of Liberalism: 1860-1919

- HTY 409 Twentieth Century Europe: 1914-1945
- HTY 410 Twentieth Century Europe II (since 1945)
- HTY 422 Modern France
- HTY 424 History of Russia II
- HTY 426 History of Germany II
- HTY 429 History of Modern Italy
- HTY 437 History of Modern Japan
- HTY 441 History of Modern China
- HTY 442 The United States and Vietnam
- HTY 446 History of Modern Middle East (1800-present)
- HTY 447 Latin America: Under the Conquerors
- HTY 448 Latin America: Reform and Revolution
- HTY 456 History of England II
- HTY 460 Modern Canada
- HTY 473/474 American Diplomatic History
- HTY 485/486 The Seas and Civilization

3. Political Science

- POS 120 Introduction to World Politics
- POS 241 Introduction to Comparative Politics
- POS 243 Canadian Government and Politics
- POS 273 International Relations
- POS 335 Major Governments of Western Europe
- POS 336 Government and Politics in Russia and Former Soviet Territories
- POS 344 Public Policy in Canada
- POS 372 Canadian Foreign Policy
- POS 374 American Foreign Policy
- POS 377 International Law
- POS 378 World Order Through International Organization and Law
- POS 379 The Evolving United Nations
- POS 463 Seminar in Canadian Politics
- POS 467 African Politics
- POS 468 Politics of Latin America
- POS 469 Politics of the Middle East
- POS 474 Instruments of American Foreign Policy Making
- POS 475 International Security
- POS 476 Seminar in World Politics
- POS 531 Topics in Comparative Politics
- POS 573 Problems in International Politics
- POS 587 Problems in International Law

C. At least one (1) year of a modern foreign language beyond the intermediate level.

INTERNATIONAL AFFAIRS IN ECONOMICS

A. At least twenty-seven (27) hours in economics, one math course and one statistics course. The course requirements are:

1. Core Courses in Economics(12 hours)
 - ECO 120 Principles of Microeconomics*
 - ECO 121 Principles of Macroeconomics*
 - ECO 420 Intermediate Microeconomics
 - ECO 421 Intermediate Macroeconomics
2. A minimum of three courses in international economics (9 hours) from among the following courses:
 - ECO 331 Global Economics
 - ECO 337 Comparative Economic Systems
 - ECO 338 Economic Development
 - ECO 340 Canadian Economics: Issues and Policies
 - ECO 347 Canadian Labor Market
 - ECO 439 International Trade and Commercial Policyand two additional upper level economics courses.

With permission students may substitute ECO 525-Advanced Topics in Economic Development for ECO 338 and may substitute ECO 523-Advanced International Trade and Commercial Policy, ECO 434-Advanced International Finance or BUA 343-Introduction to International Business for ECO 439.

2. Math: one math course from the following: MAT 114, Calculus for Business and Economics, MAT 122 Pre-Calculus, MAT 126, Calculus I, MAT 151, Calculus for the Life Sciences, MAT 241, Mathematical Logic. MAT 126 is recommended for students considering graduate work in economics.
3. Statistics: one course from the following: MAT 215, Introduction to Statistics for Business and Economics, MAT 232, Principles of Statistical Inference, MAT 434, Introduction to Statistics.
4. Students majoring in international affairs in Economics must take a minimum of 12 hours in economics at the University of Maine.

At least nine (9) hours each in anthropology, history, and political science from among the following courses or from among others with an international focus:

1. Anthropology. (See Anthropology listing under International Affairs in Anthropology, A.).
2. History. (See History listing under International Affairs in Anthropology, B.2.).
3. Political Science. (See Political Science listing under International Affairs in Anthropology, B.3.).

At least one (1) year of a modern foreign language beyond the intermediate level.

INTERNATIONAL AFFAIRS IN HISTORY

At least twenty-seven (27) hours in history, which must include HISTY 498, Senior Seminar. Among such courses may be those listed under International Affairs in Anthropology, B.2., History.

At least nine (9) hours each in anthropology, economics, and political science from among the following courses or from among others with an international focus:

1. Anthropology. (see Anthropology listing under International Affairs in Anthropology, A.)
2. Economics. (see Economics listing under International Affairs in Anthropology, B.1.)

3. Political Science. (See Political Science listing under International Affairs in Anthropology, B.3.)
- C. At least one (1) year of a modern foreign language beyond the intermediate level.

INTERNATIONAL AFFAIRS IN MODERN LANGUAGES

- A. Twenty-four (24) hours above the introductory level in one modern foreign language.
- B. At least nine (9) hours each in anthropology, economics, history, and political science from among the following courses or from among others with an international focus:
 1. Anthropology. (see Anthropology listing under International Affairs in Anthropology, A.)
 2. Economics. (see Economics listing under International Affairs in Anthropology, B.1.)
 3. History. (see History listing under International Affairs in Anthropology, B.2.)
 4. Political Science. (See Political Science listing under International Affairs in Anthropology, B.3.)
- C. Additional electives relating to international affairs arranged in consultation with major advisor. Highly recommended: a course in contemporary civilization and geography of the culture whose language is being studied.

INTERNATIONAL AFFAIRS IN POLITICAL SCIENCE

- A. Minimum grade point average of 2.0 to declare the major.
- B. POS 100 American Government or POS 120 Introduction to World Politics.
- C. In addition to POS 100 or POS 120, At least twenty-four (24) hours in political science courses with an international focus with grades of "C" or better, (see political science listing under International Affairs in Anthropology B.3).
- D. At least nine hours (9) each of courses related to international studies in the Departments of Anthropology, Economics and History, and six (6) hours of a modern foreign language beyond the intermediate level.

SCHOOL OF MARINE SCIENCES

Professor Sidell, Director

Professor Wilson, Associate Director

Professors Acheson, Bayer, Belknap, Brawley, Davison, Dearborn, Eckelbarger, King, Kornfield, Mayer, McCleave, Moring, Panchang, Riley, Schnitker, Steneck, Tyler, Vadas, Watling

Associate Professors Barber, Congleton, Fink, Kelley, Kling, Opitz, Pettigrew, Pilska, Singer, Townsend, Van Beneden, Vayda

Assistant Professors Chai, Distel, Hunt Von Herbing, Xue

Research Professor Riess

Associate Research Professor Thomas

Assistant Research Professor Tupper

The School of Marine Sciences offers B.S. Degrees in the following disciplines:

Marine Science with a Marine Biology Concentration

Marine Science with a Physical Science Concentration

Aquaculture with Concentrations in Aquaculture Technology and Aquaculture Science (The B.S. in Aquaculture is an Interdisciplinary Degree)

Marine Science is a very rich discipline that combines studies from a wide variety of subjects in order to understand the marine environment, marine life and their interactions. Basic knowledge in chemistry, geology, and physics is essential for students to analyze the workings of marine systems, and to appreciate the processes which affect biology. Studies in marine biology are very broad, spanning organisms from bacteria to whales, and perspectives from entire marine communities down to the physiology of individual cells. In the continuing quest to understand our world and manage its resources, Marine Science plays a pivotal role. The interdisciplinary nature of the Marine Science curriculum will prepare students to be able to critically analyze such contemporary issues as environmental change and biodiversity.

The School of Marine Sciences offers a B.S. in Marine Science and coordinates an interdisciplinary B.S. degree in Aquaculture.

The B.S. in Marine Sciences has two areas of concentration: Marine Biology and Physical Science. The marine biology concentration emphasizes the study of the behavior, physiology and genetics of marine animals, plants and microbes. The physical science concentration is oriented towards physical, chemical and geological oceanography. Both the physical science and marine biology concentrations share a common core set of courses designed to provide an interdisciplinary science background. Where appropriate, courses are designed to take advantage of the many ecological and oceanographic regimes found along the Maine coast. Field courses and summer internships at the University's Darling Marine Center are part of the degree offered in both concentrations. Students in the Marine Science program are provided with a strong general foundation in the sciences suitable for advanced study in one of the marine sciences or for further study in other scientific fields such as medicine and ecology. The B.S. in Marine Sciences also provides a very solid preparation for immediate employment in marine-related industries as well as other industries.

The B.S. in Aquaculture also offers two areas of concentration: Aquaculture Technology and Aquaculture Science. The aquaculture technology concentration is designed for students whose objective is employment in the aquaculture industry. The concentration provides a background for solving practical problems associated with aquaculture and allied industries. Students receive a well-rounded set of courses in the physical and biological sciences, resource economics, business and the humanities. In the last two years of the program course work can be tailored to fit a particular employment target. The aquaculture science concentration emphasizes the biological aspects of aquaculture and is designed to prepare a student for advanced education in the biological sciences or immediate employment in aquaculture production. This concentration provides an

understanding of the principles of aquatic animal production with focus on biological and ecosystem approaches. See career enhancement courses.

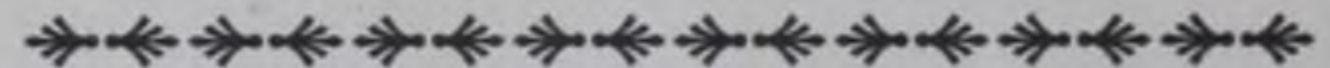
ADMINISTRATIVE OFFICES

The School of Marine Sciences has administrative offices in Winthrop Libby Hall, on the Orono Campus. Faculty offices and research facilities are located on the Orono Campus and at the Ira Darling Marine Center (100 miles south on the Damariscotta River estuary).

FACILITIES

Facilities for teaching and research in the marine sciences on the Orono campus are numerous and diverse. They are dispersed among buildings and laboratories that house SMS faculty. Special instrumentation and facilities include: a scanning and electron microscopy laboratory, instrumentation for molecular biological microbiology, including a central DNA sequencing facility, aquatic holding and recirculation systems, and comprehensive computing support.

The Darling Marine Center is the marine laboratory of the University of Maine and functions as a research and teaching facility for University faculty, students, and visiting investigators from throughout the world. The Center is located about 100 miles south of the Orono campus on the Damariscotta River estuary in midcoast Maine, about 3 kilometers from the open ocean. A shuttle provides transportation between the Orono and Darling Center campuses. Facilities include laboratory classrooms, conference rooms, dormitory, cottage housing, dining kitchen, an excellent marine library, and a newly constructed flow seawater laboratory. A fleet of small boats plus a 34' lobster-style boat provide access to the water. Several undergraduate and graduate courses are offered at the Center each year.



CURRICULUM B.S. IN MARINE SCIENCES MARINE BIOLOGY CONCENTRATION

First Year

First Semester

BIO 100 Basic Biology
CHY 121/123 Introduction to Chemistry/Lab
MAT 126 Calculus I
MAT 151 Calculus for Life Sciences
NFA 117 Issues and Opportunities (marine emph.)
SMS 100 Introduction to Ocean Science

TOTAL HOURS

1st Semester

BIO 204 Animal Biology	4
BIO 280 Introduction to Molecular and Cellular Biology	3
CHY 122 Molecular Basis of Chemical Change	3
CHY 124 Molecular Basis of Chemical Change Lab	1
ENG 101 College Composition	3
Electives	3
TOTAL HOURS	17

Sophomore Year

1st Semester

BMB 300 General Microbiology	3
BMB 221/221L Organic Chemistry/Lab	4
OR	
CHY 251/253 Organic Chemistry I/Lab	5
SMS 270 Introduction to Oceanography I	3
SMS 300 Marine Ecology	3
TOTAL HOURS	13-14

2nd Semester

BMB 305 General Microbiology Lab	2
BIO 473 Biology of Algae	4
MAT 232 Principles of Statistical Inference	3
SMS 271 Introduction to Oceanography II	3
Electives	4
TOTAL HOURS	16

Junior Year

1st Semester

BIO 353 Invertebrate Zoology	4
ENG 317 Business and Technical Writing	3
PHY 111 General Physics I	4
OR	
PHY 121 Physics for Engineers and Physical Scientists	4
Elective	3
TOTAL HOURS	14

2nd Semester

PHY 112 General Physics II	4
OR	
PHY 122 Physics for Engineering and Physical Scientists II	4
REP 371 Resource Economics	3
SMS xxx Biology of Marine Vertebrates (pending approval)	4
Elective	3
TOTAL HOURS	14

Senior Year

1st Semester

Capstone Experience in Marine Science (pending approval)	2
Courses from Physiology and Genetics Group	3-4
Electives	11-12
TOTAL HOURS	16

2nd Semester

Capstone Experience in Marine Science (pending approval)	2
Electives	12
TOTAL HOURS	14

TOTAL CREDIT REQUIRED: 120

Marine Biology Concentration Required Courses

Core Courses

BIO 100 Basic Biology	
CHY 121/123 Introduction to Chemistry/Lab	4
CHY 122/124 Molecular Basis of Chemical Change/Lab	4
ENG 101 English Composition	3
ENG 317 Business and Technical Writing	3
MAT 126 Calculus I	4
OR	
MAT 151 Calculus for Life Sciences	4
MAT 232 Principles of Statistical Inference	4
NFA 117 Issues and Opportunities.(Marine emph)	1
REP 371 Introduction To Natural Resource Economics and Policy	3
SMS 100 Introduction to Ocean Science	3
SMS 270 Introduction to Oceanography I	3
SMS 271 Introduction to Oceanography II	3
TOTAL HOURS	35

General Courses

BIO 204 Animal Biology	4
BIO 280 Introduction to Molecular and Cellular Biology	3
BIO 353 Invertebrate Zoology	4
BIO 473 Biology of Algae (4)	
BMB 300 General Microbiology	3
BMB 305 General Microbiology Lab	2
BMB 221/221L Organic Chemistry/Lab	4
OR	
CHY 251/253 Organic Chemistry I/Lab	5
MAT 126 Calculus I	4
OR	
MAT 151 Calculus for Life Sciences	4
PHY 111 General Physics I	4
OR	
PHY 121 Physics for Engineers I	4
PHY 112 General Physics II	4
OR	
PHY 122 Physics for Engineers II	4
SMS 300 Marine Ecology	3
SMS xxx Biology of Marine Vertebrates (pending approval)	3

Physiology and Genetics (one course from the list)

BIO 445 Plant Genetics	3
BIO 452/453 Plant Physiology	4
BIO 462 Genetics	3
BIO 465 Evolution	3
BIO 485 Comparative Animal Physiology	4
BMB 430/431 Bacterial Physiology/Bacterial Physiology Lab	4
BMB 490 Microbial Genetics	4

Capstone Experience (4 credit hours)

Capstone Experience in Marine Science (pending approval)	2
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TOTAL CREDITS REQUIRED:46-48

Recommended Courses

BIO 336 Developmental Biology	4
BIO 585 Physiological Ecology of Marine Organisms	3
BMB 322/322L Introduction to Biochemistry	4
CHY 456 Chemical Ecology	3
GES 314 Invertebrate Paleontology	3
MAT 127 Calculus II	4
SMS 422 Biology of Fishes	3



**CURRICULUM B.S. in MARINE SCIENCES
PHYSICAL SCIENCE CONCENTRATION**

First Year

First Semester

BIO 100 Basic Biology	4
CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Lab	1
NFA 117 Issues and Opportunities (marine emphasis)	1
MAT 126 Calculus I	4
SMS 100 Introduction to Ocean Science	3
TOTAL HOURS	16

Second Semester

ENG 101 College Composition	3
CHY 122/124 Molecular Basis of Chemical Change/Lab	4
MAT 127 Calculus II	4
GES 101 Introduction to Geology	4
OR	
GES 102 Environmental Geology of Maine	4
OR	
GES 106 Geology for Engineers	4
TOTAL HOURS	15

Sophomore Year

First Semester

SMS 270 Introduction to Oceanography I	3
CHY 240/242 Quantative Analysis	3-5
PHY 121 Physics for Engineers and Physical Scientists I	4
Electives	4
TOTAL HOURS	14-16

Second Semester

SMS 271 Introduction to Oceanography II	3
MAT 232 Principles of Statistical Inference	3
Courses from Systems and Processes Group	4
PHY 122 Physics for Engineers and Physical Scientists II	4
Electives	2-4
TOTAL HOURS	14-16

Junior Year

First Semester

SMS 325 Marine Geology	3
Courses from Systems and Processes Group	6
Electives	5-8
TOTAL HOURS	14-17

Second Semester

ENG 317 Business and Technical Writing	3
SMS 330 Descriptive Physical Oceanography	3
Courses from Systems and Processes Group	3
Elective	6
TOTAL HOURS	15

Senior Year

First Semester

Capstone Experience in Marine Science (pending approval)	2
Courses from Systems and Processes Group	4-6
Electives	8
TOTAL HOURS	14-16

Second Semester

- Capstone Experience in Marine Science (pending approval)
- REP 371 Resource Economics
- Courses from Systems and Processes Group
- Electives

TOTAL HOURS

TOTAL CREDITS REQUIRED: 120

Physical Science Concentration Required Courses

Core Courses

- BIO 100 Basic Biology
- CHY 121/123 Introduction to Chemistry/Lab
- CHY 122/124 Molecular Basis of Chemical Change/Lab
- ENG 101 English Composition
- ENG 317 Business and Technical Writing
- MAT 126 Calculus I
- OR
- MAT 151 Calculus for Life Sciences
- MAT 232 Principles of Statistical Inference
- NFA 117 Issues and Opportunities (Marine emphasis)
- REP 371 Introduction To Natural Resource Economics and Policy
- SMS 100 Introduction to Ocean Science
- SMS 270 Introduction to Oceanography I
- SMS 271 Introduction to Oceanography II

TOTAL HOURS

General

- CHY 240 Quantitative Analysis
- OR
- CHY 242 Principles of Quantitative Analysis
- GES 101 Introduction to Geology
- OR
- GES 102 Environmental Geology
- OR
- GES 106 Geology of Maine
- MAT 127 Calculus II
- PHY 121 Physics for Engineers I
- PHY 122 Physics for Engineers II
- SMS 325 Marine Geology
- SMS 330 Descriptive Physical Oceanography

Systems and Processes (16 credit hours from this group):

- CHY 251 Organic Chemistry I
- CHY 252/253 Chemical Reactivity I
- CHY 371/373 Physical Chemistry I/Lab
- CHY 372/374 Physical Chemistry II/Lab
- GES 314 Invertebrate Paleontology
- GES 315 Principles of Stratigraphy
- SMS 300 Marine Ecology
- SMS 410 Marine Physics
- SMS 440 Satellite Oceanography
- SMS xxx Waves and Tides (pending approval)
- SMS 460 Introduction to Climate Change

Capstone Experience (4 credit hours)

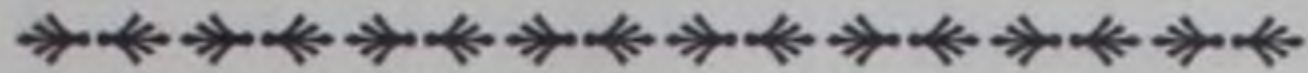
- Capstone Experience in Marine Science (pending approval)

TOTAL HOURS

Recommended courses

- BIO 204 Animal Biology
- BIO 300 Field Marine Biology
- BMB 322/322L Introduction to Biochemistry/Lab
- CHY 456 Chemical Ecology

HY 461 Advanced Inorganic Chemistry I	3
IAT 228 Calculus III	4
IAT 258 Differential Equations	4



CURRICULUM B.S. in AQUACULTURE

First Year

<i>First Semester</i>	
NFA 117 Issues and Opportunities	1
ENG 101 College Composition	3
SMS 211 Introduction to Aquaculture	3
BIO 100 Basic Biology	4
Elective	3
TOTAL HOURS	14

<i>Second Semester</i>	
COS 100 Introduction to Personal Computers	3
MAT 151 Calculus for Life Sciences	4
INT 110 Modern Economic Problems	3
BIO 204 Animal Biology	4
AVS 200 Topics in Animal Sciences	1
TOTAL HOURS	15

Sophomore Year

<i>First Semester</i>	
CHY 121/123 Introduction to Chemistry/Lab	4
SMS 220 Introduction to Marine Resources	2
SMS 370 Introduction to Oceanography	4
COM 103 Fundamentals of Public Communication	3
Elective	3
TOTAL HOURS	15

<i>Second Semester</i>	
CHY 122/124 Molecular Basis of Chemical Change/Lab	4
MAT 232 Principles of Statistical Inference	3
Electives	6
Career Enhancement	3
TOTAL HOURS	16

Junior Year

<i>First Semester</i>	
BIO 462 Principles of Genetics	3
ENG 317 Business and Technical Writing	3
BRE 449 Engineering for Aquaculture	3
Elective	3
Career Enhancement	3
TOTAL HOURS	15

<i>Second Semester</i>	
SMS 340 Finfish Aquaculture	3
REP 254 Introduction to Production Economics	3
SMS 309 Shellfish Practicum	2
Electives	4
Career Enhancement	3
TOTAL HOURS	15

Senior Year

<i>First Semester</i>	
SMS 467 Fish Nutrition and Feeding	3
AVS 401 Senior Paper I	2
FSN 330 Introduction to Food Science	3
Electives	6
Career Enhancement	3
TOTAL HOURS	16

<i>Second Semester</i>	
SMS 320 Techniques in Aquaculture	2
SMS 409 Shellfish Aquaculture	3
SMS 420 Fish Health Management	2
AVS 402 Senior Paper II	1
Career Enhancement	3
Electives	3
TOTAL HOURS	14

Foundations Courses

NFA 117 Issues and Opportunities	1
SMS 211 Introduction to Aquaculture	3
Total Credits	4

Communications

ENG 101 College Composition	3
COM 103 Fundamental of Public Communication	3
ENG 317 Business and Technical Writing	3
AVS 200 Topics in Animal and Aquatic Science	1
Total Credits	10

Human Values and Social Context

INT 110 Modern Economic Problems	3
Human Values and Social Context Electives*	15
Total Credits	18

Quantitative and Computer Skills

MAT 114 Calculus for Business and Economics	3
OR	
MAT 122 Pre-Calculus	
OR	
MAT 151 Calculus for Life Sciences	4
OR	
MAT 126 Calculus I	4
MAT 215 Introduction to Statistics for Business and Economics	3
OR	
MAT 232 Principles of Statistical Inference	3
COS 100 Introduction to Personal Computers	3
OR	
COS 211 Principles of Data Processing	3
OR	
COS 220 Introduction to Computer Science I	3
Total Credits	9-10

General Science Courses

BIO 100 Basic Biology	4
BIO 204 Animal Biology	4

* Electives should be chosen to address the following areas: Cultural diversity, western cultural tradition, social context and institutions, population and the environment, artistic and creative expression and ethics. Courses that satisfy requirements in more than one sub-category may be counted in each appropriate sub-category (see General Education Requirements)

BIO 210 Introduction to Marine Biology	4
OR	
BIO 213 Introduction to Marine Sciences	4
OR	
SMS 270 Introduction to Oceanography I	3
CHY 121/123 Introduction to Chemistry/ Lab	4
OR	
BMB 207 Fundamentals of Chemistry	4
OR	
CHY 132/134 Applications of Chemistry/Lab	4
OR	
BMB 208 Elementary Physiological Chemistry	4
Total Credits	19-20

Aquaculture Core Courses

BIO 462 Principles of Genetics	3
SMS 220 Introduction to Marine Resources	2
SMS 309 Techniques in Shellfish Aquaculture	4
SMS 340 Finfish Aquaculture (spring even years)	3
SMS 320 Techniques in Aquaculture (spring, odd years)	2
SMS 409 Shellfish Aquaculture (spring, odd years)	3
SMS 420 Fish Health Management (spring, odd years)	2
SMS 467 Fish Nutrition and Feeding (fall, odd years)	2
FSN 330 Introduction to Food Science	3
REP 254 Introduction to Production Economics	3
BRE 449 Engineering for Aquaculture	3
AVS 368 Practicum in Finfish (Preq. SMS 340)	2
Total Credits	29

Senior Capstone Course

AVS 401 Senior Paper in Animal Science I	2
AVS 402 Senior Paper in Animal Science II	1
Total Credits	3

Career Enhancement Courses

Students will select a minimum of 15 credits from the following listing of courses to enhance their Aquaculture major. Courses listed under Aquaculture Technology are directed towards students interested in the applied aspects (production technology and marketing) of Aquaculture. Those listed under Aquaculture Science are directed towards students more interested in specific knowledge of the biology of aquatic organisms and ecosystems.

Students may select courses in either category upon consultation with their academic advisor.

Aquaculture Technology

BRE 220 Introduction to Bio-Resource Engineering	3
BRE 269 Computer Aided Drafting and Design	3
BRE 281 Elementary Plane Surveying	1
BRE 298 Special Topics in Bio-Resource Engineering	3

BRT 365 Water Supply and Waste Management	3
BRT 369 Processing Technology	3
CIE 110 Materials	3
CIE 231 Fundamentals of Environmental Engineering	3
INT 105 Environmental Policy	3
INT 330 Waste Management	3
INT 460 Environmental Aspects of Aquaculture	3
NRC 324 Environmental Protection Law and Policy	3
PHY 107 Technical Physics I	4
PHY 108 Technical Physics II	4
REP 371 Introduction to Natural Resource Economics and Policy	3
REP 458 Principles of Resource Business Management	3
REP 459 Resource-Based Business Finance	3
REP 465 Food and Fiber Marketing	3
REP 468 Quantitative Analysis and Forecasting	3
SIE 271 Geographical Information Systems	3

Aquaculture Science

BIO 280 Introduction to Molecular and Cellular Biology	3
BIO 300 Field Marine Biology	3
BIO 329 Vertebrate Biology	3
BIO 333 Comparative Anatomy	4
BIO 336 Developmental Biology	4
BIO 353 Invertebrate Zoology	4
BIO 377 Animal Physiology	3-4
BIO 438 Morphogenesis and Differentiation	3
BIO 451 Histology	4
BIO 468 Limnology	3
BIO 469 Limnology Lab and Field	2
BIO 467 Wetland and Aquatic Biology	4
BIO 472 Fishery Biology	3
BIO 471 Fishery Biology Laboratory	1
BIO 473 Biology of Algae	4
BIO 480 Cell Biology	4
BIO 485 Comparative Animal Physiology	4
BMB 221 Organic Chemistry	3
BMB 221L Laboratory in Organic Chemistry	1
BMB 300 General Microbiology	3
BMB 305 General Microbiology Laboratory	2
BMB 322 Biochemistry Introduction	3
BMB 322L Biochemistry Laboratory	1
BRE 234 Engineering of Biological Systems	3
FSN 340 Food Processing Laboratory (corequisite FSN 330)	1
FSN 438 Food Microbiology	4
PHY 111 General Physics I	4
PHY 112 General Physics II	4
Free Electives to meet 120 CREDITS required for graduation.	

MATHEMATICS AND STATISTICS

Professor Bray (Chairperson)

Professors Balakrishnan, Bresinsky, Farlow, Franzosa, P. Gupta, R. Gupta, Murphy (Graduate Coordinator), Pogorzelski, Puri, Snyder, Wohlgemuth

Associate Professors Halteman, Hannula, Locke, Ozluk, Slavin, Zoldi

Instructor Kimball

Lecturer Van Steenberghe

Cooperating Professor H. Dowse

COURSE REQUIREMENTS FOR THE MATHEMATICS MAJOR

Required courses for the B.A. in mathematics are divided into core courses presenting the basic ideas of mathematics and courses in an area of concentration chosen by the student in consultation with her/his advisor.

BASIC CORE COURSES: FIRST AND SOPHOMORE YEARS

DS 220 Introduction to Computer Science I
AT 126 Calculus I
AT 127 Calculus II
AT 228 Calculus III
AT 261 Introduction to Abstract Mathematics
AT 262 Linear Algebra

19 Math Hours

BASIC CORE COURSES: JUNIOR AND SENIOR YEARS

AT 434 Introduction to Statistics

Plus one other abstract mathematics course to be chosen with the approval of the student's advisor.

7 Math Hours

Additional requirement: At least three upper-level MAT courses to be chosen by the student in consultation with her/his advisor. These courses should form a coherent area of concentration. Some examples of areas of concentration, and applicable courses, are:

Pure Mathematics:

MAT 426, 452, 464, 465, 471, 475

Continuous Mathematics:

MAT 452, 453, 454, 459, 471, 487
(PHY 121,122)

Discrete Applied Mathematics:

MAT 455, 456, 457, 487

Statistics:

MAT 435, 436, 437, 531, 532, 533

Mathematics Education:

MAT 305, 445, 465, 372, 475, 505

CONCENTRATION AREA OUTSIDE OF MATHEMATICS

In addition to the core and area of concentration coursework in mathematics, each mathematics major must complete an 18 hour concentration or two 12 hour concentrations of approved courses in areas outside of mathematics.

MECHANICAL ENGINEERING

Professor Grant (Chairperson)

Professors Rivard, Sucec

Associate Professors Boyle, Caccese, Messier, Poland, Sayles

UNDERGRADUATE PROGRAM

The Mechanical Engineering Department offers a four-year undergraduate program leading to the bachelor of science degree in mechanical engineering which is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Mechanical engineers apply scientific methods to the solution of mechanical problems and are concerned with the principles of motion, energy transformation, and force. Mechanical engineering is a challenging profession which encompasses many areas of design, development and production. Mechanical engineers design simple devices like fishing reels and automatic door closers, and more complex systems such as airplanes, automobiles, satellites and power plants, and in manufacturing companies they develop computer systems that improve the production process. They also design advanced materials and structures to meet the demands of supersonic and hypersonic space travel. Mechanical engineers also work in the nuclear energy field on the design of underwater vessels, electrical power plants equipped with reactors, pressure piping, heat exchangers, and other specialized components. It would be difficult to find an area or object in everyday life that was not in some way affected by a mechanical engineer.

Mechanical engineers work in industry, consulting practices, universities and government research. The vast majority are employed in industry at equipment manufacturers, aerospace companies, utilities, material processing plants, transportation companies, petroleum companies and a host of other firms. Job functions and responsibilities range from systems design to power plant operations and quality control. Mechanical engineers working in governmental design and research projects assist on key policy decisions regarding technology development and use. For example, engineers working with government agencies conduct research on solar energy, advanced materials, radioactive waste removal, magnetic-levitation trains, and the space program—research that will have direct impact on American business and the lives of people in the years ahead.

The Mechanical Engineering Department is committed to the preparation of the student for the initiation of a professional career in mechanical engineering or for the continuation of studies in graduate school. The program develops the student's creative potential to meet the increasingly complex needs of industry, government and education. The curriculum prepares the student for a professional career or more advanced studies. It provides a foundation of knowledge in mathematics, basic physical sciences, thermal sciences, dynamic systems, material science, fluid and solid mechanics and design of systems. The development of abilities in mathematical analysis, experimental techniques, computer methods and design are emphasized throughout the program. Technical electives in the program give students the opportunity to gain additional competence in specific areas. Engineers must address problems which raise issues requiring awareness of economic, ethical, political, social and legal issues as well as the technical issues of the profession. Therefore, preparation for a career in mechanical engineering includes an introduction to the humanities and social sciences as well as mathematics, science and engineering fundamentals. A major strength of the department is its capstone senior design sequence where design experiences are frequently drawn from government or industry. These activities create an awareness of the origins of the

engineering work and the breadth of the parameters to be considered in order to carry out the work successfully. To encourage these interactions and provide other opportunities for student contacts with practicing engineers and other professionals, the Department supports the major student professional associations. These include the American Society of Mechanical Engineers, the Society of Women Engineers and the honor societies Pi Tau Sigma and Tau Beta Pi.

In consultation with an academic advisor the student plans a program based on the following Mechanical Engineering Curriculum. The format is a suggested program which can be modified within constraints of satisfying all of the requirements and course prerequisites to satisfy scheduling needs or student preferences. The program has ten elective courses among the 41 courses required for the degree. Six of the electives must be approved humanities or social sciences, and four must be technical with the courses selected from specified groups. Lists of courses qualifying for these electives are available in the Mechanical Engineering office. By careful use of this flexibility in electives, students may pursue in some depth their particular interests in both technical and non-technical subjects. Some Mechanical Engineering electives will not be offered every year.

ACADEMIC STANDARDS

In addition to meeting all University academic requirements, a mechanical engineering student must also have a minimum GPA of 2.0 in all MEE courses.

GRADUATE PROGRAM

The Department of Mechanical Engineering offers programs of study and research leading to either a thesis or a non-thesis Master of Science degree. Students with a B.S. in Mechanical Engineering are required to complete 30 semester hours of graduate work. For the thesis M.S. degree program, the 30 credit hours includes 24 credit hours of course work and 6 credit hours for the thesis. In the non-thesis M.S. degree program the student must complete 30 credit hours of course work.

Descriptions of the programs and general requirements for advanced degrees are described in the Graduate School catalog. Some teaching assistantships and research assistantships are available through the department.

DOUBLE MAJORS AND DEGREES

Majors and Double Degrees Students may wish to declare a double major or obtain a second degree. One common choice is to combine mechanical and electrical engineering. A minimum of one extra year is ordinarily required for a double major or double degree. The student should see his or her advisor early in the program to be sure all requirements are being met.

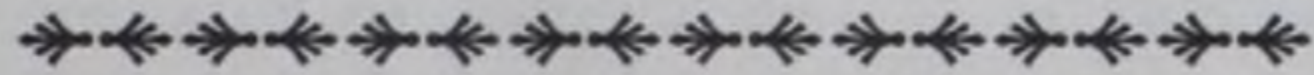
MECHANICAL ENGINEERING DEPARTMENT COOPERATIVE EDUCATION PROGRAM

The Mechanical Engineering Department provides students the opportunity to participate in a cooperative education course, MEE 394. The course is under the direction of a mechanical engineering co-op coordinator who monitors the student's progress in the course

The course requires that appropriate project work be assigned by the cooperating company or agency.

PULP AND PAPER OPTION IN MECHANICAL ENGINEERING

Students who are enrolled in the undergraduate program can undertake an integrated program where the requirements of the fourth year of their basic curriculum and the additional courses of the five-year option are distributed to reinforce each other over the last two years of a five-year program. The five year pulp and paper program is described in detail in the Chemical Engineering section of this catalog. The Bachelor of Science in Mechanical Engineering degree and a pulp and paper certificate are awarded concurrently at the end of the fifth year.



SUGGESTED CURRICULUM FOR THE B.S. in MECHANICAL ENGINEERING

First Year

First Semester

ENG 101 College Composition	3
GEE 101 Introduction To Engineering Design	3
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4
Elective*	3

TOTAL HOURS 17

Second Semester

COS 215 Introduction to Computing Using FORTRAN	3
MAT 127 Calculus II	4
MEE 150 Applied Mechanics: Statics	3
PHY 122 Physics for Engineers and Physical Scientists II	4
Elective*	3

TOTAL HOURS 17

Sophomore Year

First Semester

CHY 121 Introduction to Chemistry	3
CHY 123 Introduction to Chemistry Laboratory	1
MAT 228 Calculus III	4
MEE 230 Thermodynamics I	3
MEE 251 Strength of Materials	3
Elective*	3

TOTAL HOURS 17

Second Semester

ECE 210 Electric Networks I	3
MAT 258 Introduction to Differential Equations with Linear Algebra	4
MEE 231 Thermodynamics II	3
MEE 270 Applied Mechanics: Dynamics	3
Elective*	4

TOTAL HOURS 17

Junior Year

First Semester

ECE 211 Electric Networks II	4
MAT 332 Statistics for Engineers	3
MEE 340 Machine Tool Processing	2
MEE 360 Fluid Mechanics	3
MEE 380 Design I	3
Elective*	3

TOTAL HOURS 18

Second Semester

ENG 317 Business and Technical Writing	3
MEE 320 Materials Engineering and Science	3
MEE 341 Mechanical Laboratory I	3
MEE 381 Design II	3
MEE 456 Introduction to Computational Methods	3

TOTAL HOURS 15

Senior Year

First Semester

MEE 342 Mechanical Laboratory II	2
MEE 387 Design III	4
MEE 432 Heat Transfer	3
Elective*	3
Elective*	3

TOTAL HOURS 15

Second Semester

MEE 343 Mechanical Laboratory III	2
MEE 388 Design IV	4
Elective*	3
Elective*	3
Elective*	3

TOTAL HOURS 15

TOTAL CREDITS REQUIRED: 131

Electives:

Of the ten electives required in the program one must be a basic science elective, one must be an engineering science elective, two must be mechanical engineering design electives, and six must be from the Human Values and Social Context area of the University General Education Requirements.

1. A list of courses qualifying for basic science elective credit (4 credits) is available in the MEE office. Suggested courses include AST 215/110, BIO 100, CHY 132/134, GES 101, GES 106 and PHY 236.
2. A list of mechanical engineering courses qualifying for engineering science credit (3 credits) is available in the MEE office. Other 300 level and higher courses in applied sciences, engineering sciences, mathematics and computer science may, with approval of the student's academic advisor, satisfy this requirement.
3. A list of approved mechanical engineering courses qualifying for design credit (6 credits from this category) is available in the MEE office.
4. Students are required to complete six courses (18 credit hours) in the General Education Requirement area of Human Values and Social Context. Also, at least 3 credits must be from each of the five Human Values and Social Context categories: western cultural tradition; social context and institutions; cultural diversity and international perspectives; population and environment; and artistic and creative expression.
5. Students are required to take a course or a series of courses placing substantial emphasis on discussion of ethical issues. This requirement is normally satisfied by proper choices within the 18 credit hours required in the Human Values and Social Context area.

MILITARY SCIENCE

Professor of Military Science LTC Wright
 Instructors CPT Clements, CPT Jordan, MSG Cobb, SFC Jones, SSG Davis
 Supply Technician Mr. Smith

GENERAL

The Department of Military Science conducts general military science education at two levels, basic and advanced military studies. MS I and II level courses are open to all university students with the exception of MIS 100 - Leadership Laboratory, which is only open to enrolled or contracted ROTC students. Students taking 100 and 200 level courses are under *no obligation to the U. S. Army in any way*. Students may take MIS courses at the 300 and 400 level with the permission of the Professor of Military Science. Students wishing to contract and pursue a commission in the U.S. Army as a Second Lieutenant may do so in one of four (4) ways: 1. be selected and accept an ROTC Scholarship, 2. complete MIS 101, 102, 201 and 202 classes with a grade of C or better, be accepted by the Professor of Military Science and sign a contract at either the end of their sophomore year or during the first semester of their junior year, 3. complete "basic camp" at Fort Knox, KY, during the summer between their sophomore and junior year, at which time the student is eligible to contract if he/she desires to do so, and 4. Veterans of any branch of military service may be eligible to contract at the start of their junior year if he/she desires to do so.

THE ADVANCED COURSE

The Advanced Course is open to students who have been accepted by the Professor of Military Science, have completed the Basic Course or the equivalent, and who are contracted in the ROTC Program. Students must complete the courses numbered greater than 300. In addition, students are required to attend a six-week ROTC Advanced Camp at Fort Lewis, Washington, between their junior and senior years. In exceptional cases, ROTC Advanced Camp may be deferred by the Professor of Military Science until the student completes the senior year. Students receive \$150.00 a month and may be commissioned in either the Army Reserve, Army National Guard or Active Army.

SCHOLARSHIP PROGRAM

The Department of Army offers four, three and two year general Scholarships, two year Guaranteed Reserve Forces Duty and Basic Camp ROTC scholarships to selected students, regardless of enrollment in the Military Science Program, who have demonstrated outstanding leadership and scholastic ability. These scholarships pay from \$5,000 to \$12,000 towards tuition for the respective number of years at the University, mandatory fees, a stipend for textbooks, and \$150 per month during the academic year for the duration of the scholarship. Four year scholarship winners (with 1100 SAT Score) or three-year Advance designated Scholarship winners (with 1200 SAT Score) who attend the University of Maine will receive an *additional \$2,500 per year grant* from the University.

SIMULTANEOUS MEMBERSHIP PROGRAM

Students who are members of the Army National Guard or the Army Reserve and who have completed basic training may qualify for entry into the Advanced Course upon completion of their sophomore year and have 4 academic semesters remaining. The

student is automatically advanced to the pay grade of E-5 in his or her Guard/Reserve unit upon entering the ROTC program and receives training as a "third lieutenant." Upon completion of the Advanced Course, the student is eligible to be commissioned as a Second Lieutenant in the National Guard, Army Reserve, or Active Army.

PROFESSIONAL MILITARY EDUCATION COURSES

All ROTC cadets must complete the following undergraduate *type* courses. (CCR145-3)

1. Written Communication Skills.
2. Military History.
3. Computer Literacy.

Recommended Courses:

1. Management Skills.
2. National Security Studies.

All colleges accept some Military Science courses toward degree completion. Ten credits from the MIS 300 and 400 level courses are accepted by the College of Liberal Arts and Sciences and the College of Business, Public Policy, and Health. The College of Engineering accepts 6 credits from MIS 310 and MIS 420. The College of Education and Human Development and the College of Natural Sciences, Forestry and Agriculture require students to meet with their advisors to determine course applicability toward program requirements. All Military Science credits count towards a student's overall GPA.

AREAS OF SPECIALIZATION

Military Science	Credits
MIS 040 Mountain School	0
MIS 050 Northern Warfare School	0
MIS 060 Air Assault School	0
MIS 070 Airborne School	0
MIS 100 Leadership Laboratory (RO)	0
MIS 101 Introduction to Leadership-Theory and Application (RO)	1
MIS 102 Introduction to the United States Army (RO)	1
MIS 105 Military Physical Fitness (E)	1
MIS 201 Basic Military Skills (RO)	1
MIS 202 Orienteering (R)	1
MIS 290 ROTC - Basic Camp (RO)	6
MIS 310 Advanced Leadership (R)	3
MIS 320 Advanced Tactics (R)	3
MIS 390 ROTC - Advanced Camp (R)	6
MIS 410 Military Management, Justice and Leadership Assessment (R)	3
MIS 420 History, (WWI - Present), Leadership and Ethics Seminar (R)	3
TOTAL	15-21

(R) = Required
 (RO) = Required/Optional, depending on specific commissioning program
 (E) = Elective

MODERN LANGUAGES AND CLASSICS

Associate Professor Passman (Chairperson)

Professors March, Small, Troiano

Associate Professors Bauschatz, Del Vecchio, Passman, Pelletier, Slott, Zollitsch;

Assistant Professors Pyles, Smith

The Department of Modern Languages and Classics, in accord with the Land and Sea Grant charter of the University of Maine, views its charge as encompassing three areas: teaching, research, and public service. As such, our central mission is to carry out graduate (M.A., M.A.T.), undergraduate, major and minor programs of study in French, German, Spanish, Latin, Russian, Modern Languages, Romance Languages, International Affairs and minors, as outlined elsewhere in this catalog. In addition, we provide the majority of teacher preparation for language teachers in the State of Maine.

Our purpose is to provide students with programs of the highest quality delivering courses of breadth and depth in the areas of language, literature and related media, and culture/civilization.

Several departments and colleges at the University of Maine have special language requirements or recommendations for B.A. degree students. Some require successful completion of six credit hours of a modern language at the intermediate level. Listed below are the departments that require or recommend a modern language: *Anthropology*: Intermediate language proficiency strongly recommended.

Art: Intermediate level French or German is required for students who major in art history.

Biological Sciences: Proficiency at the intermediate level.

Business Administration: Check with the College of Business, Public Policy and Health.

Chemistry: One year of either French, German, or Russian.

Communication and Journalism: Check with the department office for language proficiency requirement.

Computer Science: The intermediate level of a modern language is strongly recommended.

English: Proficiency at the intermediate level.

Biological Sciences: Students contemplating graduate work are strongly encouraged to take either French, German, or Russian.

History: Students majoring in History are required to demonstrate intermediate level proficiency in a modern language through course work or examination.

Mathematics and Statistics: The intermediate level of a modern language is strongly recommended.

Music: Music - One year of a modern language which can be either the continuation of a language taken in high school or a new language.

Philosophy: One year of a modern language is recommended for the B.A. degree; two years for those going on to graduate study.

Physics: One year of a modern language is recommended for the B.A. degree, two years for those contemplating graduate study.

Political Science: At least one year of a modern language beyond the intermediate level for students majoring in International Affairs.

Sociology: Recommended if considering graduate study.

Social Work: Recommended if considering graduate study.

Theater: Proficiency at the intermediate level.

In addition, B.A. or B.S. degree students may elect to fulfill one or more of their distribution requirements with a modern language chosen from an approved list.

Students in some majors who have presented two years of a high school foreign language for admission may not receive credit for an elementary course in that particular language unless five years have passed between high school graduation and admission to a

college or a university. Please consult your major department or college regarding specific language requirement policies. The department recommends that these students take:

1. An intermediate or advanced course in the language studied in high school (credits earned in those courses count towards the advanced course credits in the humanities category)

OR

2. An elementary course in a new language (credits earned here count towards the introductory course credits in the humanities category).

Any language course (except for elementary courses in the student's high school foreign language) can be taken for credit as an elective.

Credits are awarded on a semester basis.

Finding the appropriate level at which to take a language course is essential for success. The department offers placement tests in foreign languages four times during the academic year. Please sign up in the departmental office.

CERTIFICATE OF ACHIEVEMENT.

The Department of Modern Languages and Classics awards certificates to students who complete twelve hours of language study beyond the intermediate level with at least a B (=3.00 or better) in all four courses.

MAJORS

Students may major in the following fields: French, German, Spanish, Romance Languages, Modern Languages, Latin and International Affairs.

A. General Requirements for Majors in Modern Languages and Classics

1. Demonstration of listening comprehension, oral, reading, and writing proficiency (students who have not received at least "B" in FRE 205 or 206, or GER 205, 206 or equivalent, or SPA 205 or 206 may be required to take a test in language skills), and
2. Demonstration of comprehensive coverage of literature and civilization through successful completion of appropriate course work, and
3. Beyond the intermediate level in French, German, and Spanish: 30 hours.

B. Special Requirements for Majors in:

French:

18 hours of 400 level French courses, three hours of French or French-Canadian Civilization. A three-credit course in the history of a Francophone country, and INT 410 are strongly recommended. HTY 105 (History of European Civilization I), HTY 106 (History of European Civilization II) and/or HTY 422 (Modern France) are highly recommended.

German:

Introduction to German Literature, GER 311 or 312 (or equivalent), 15 hours of 400 level German courses, and HTY 425 (History of Germany I), HTY 426 (History of Modern Germany) is highly recommended.

Spanish:

SPA 307 or SPA 308 or equivalent, 18 hours of 400 level Spanish courses, HTY 105/106 (History of European Civilization I & II) or HTY 447 (Latin America under the Conquerors), HTY 448 (Latin America: Reform and Revolution) are highly recommended. One Spanish course in English translation may be taken (MLC 440, MLC 445 and appropriate MLC topics courses).

Romance Languages:

A minimum of 30 hours in French and Spanish beyond the intermediate level, 24 of which must be in 400 series; a minimum of 12 hours above the intermediate level in each of the two languages must be taken.

Modern Languages:

A minimum of 30 hours beyond the intermediate level, representing a combination of either a Romance language and German, a Romance language and Russian, or German and Russian. A minimum of 12 hours above the intermediate level must be taken in each of the two languages and at least 18 hours must be in 400 series courses.

Latin:

A minimum of 24 hours in Latin beyond the intermediate 200 level. LAT 247/248 should be taken in the junior year or earlier, if possible. In addition, majors are required to complete successfully 18 hours in two or more related disciplines in the arts and sciences, including other languages and courses in translation offered by the Department. Students intending to pursue Classical Studies on a graduate level should take six hours in Greek and CLA 101/102.

MINORS IN MODERN LANGUAGES AND CLASSICS

Please see "minors" section in the College of Liberal Arts and Sciences. Refer to index.

Pre-MBA CURRICULUM IN MODERN LANGUAGES OR INTERNATIONAL AFFAIRS IN MODERN LANGUAGES

Students wishing to pursue a modern languages/pre MBA curriculum should fulfill all requirements for a language major plus ECO 120 and ECO 121 as part of their Social Science Area I requirement plus MAT 232/337 and COS 211 as part of their Natural Sciences/Math Area III requirement. In addition, the following prerequisites could be taken as free electives: BUA 220, BUA 335, BUA 350, BUA 370, BUA 400 or (201-202), and MAT 115 or equivalent. Students completing such a sequence would be eligible to apply to the MBA program and upon acceptance complete the 10 graduate courses within one calendar year.

INTERDISCIPLINARY STUDIES

1. B.A. in French (North American option) students may combine a program of 24 hours in French beyond the intermediate level with 18 hours of related work in three of the following departments:
Anthropology: ANT 357, 380, GEO 350
History: HTY 458, 359, 360, 521
Sociology: SOC 431, 338
CAN 101, Introduction to Canadian Studies
In addition, students are required to take FRE 440 and FRE 256.
2. Linguistics (See interdisciplinary course concentrations). Students may combine a program of a minimum of 15 hours distributed as follows:
 - A. Core at least one course must be completed in each of the following categories for a minimum total of nine credit hours.
 1. Introduction
INT 410 Introduction to Linguistics

2. Language Structure
MLC 453 Phonology
ENG 477 Modern Grammar

3. Language in Context
INT 380 Sociolinguistics
ANT 481 Language and Culture
COM 380 Language and Speech Development

- B. Electives Students may select courses from among the following which, when added to those in the core, will complete the total of 15 credit hours.
CDS 483 Anatomy and Physiology of the Speech Mechanism
CDS 484 Introduction to Speech Science
CDS 585 Children's Language Disorders
COM 405 Women and Communication
COS 220 Introduction to Computer Science I
COS 221 Introduction to Computer Science II
COS 301 Programming Languages
COS 470 Introduction to Artificial Intelligence
ENG 476 History of English Language
ENG 579 Theory of Composition (dual listed as COM 579)
FRE 442 French Language of North America
FRE 499 Applied French Linguistics
FRE 500 History of French Language
FRE 420 French Phonetics
FRE 520 French Linguistics
GER 403 History of German Language
MAT 241 Mathematical Logic
PHI 260 Philosophy of Language
PHI 363 Theory of Knowledge
PSY 522 Social Development of Children

The enumeration here is not definitive. New courses, projects, special seminars, or pertinent readings in upper honors courses may be approved for the program.

Note that the three areas of the distribution requirements for the B.A. degree-Humanities and Fine and Performing Arts, Social Sciences, and Natural Sciences and Mathematics-are represented among the courses listed for this concentration. Working toward the latter is therefore compatible with satisfying B.A. distribution requirements.

Although one may fulfill the minimum requirements by taking five courses from Category I and none from Category II, it is expected that students will choose one or more of the elective courses.

INTERNATIONAL AFFAIRS IN FOREIGN LANGUAGES

Students may combine a program of twenty four hours above the introductory level in French, German, Russian, or Spanish with nine hours in Social Anthropology, and with nine hours each in Economics, History, and Political Sciences from among courses with an international focus (see Index, International Affairs). Highly recommended is a course in contemporary civilization and geography of the culture whose language is being studied.

TEACHER PREPARATION

In addition to meeting the major requirements in Modern Languages, students desiring certification must complete the following:

1. An advanced grammar course (FRE 400, GER 400, SPA 400)
2. A civilization course (FRE 457, GER 402, SPA 457/458)
3. MLC 466 The Teaching of Modern Languages
4. EDB 202, EDB 221, EDB 204, SED 400, one methods course, a practicum experience, one curriculum course, a pre-student teaching seminar, student teaching, and in the case of French majors only FRE 420 (French Phonetics). Students also should register with the College of Education and Human Development as teacher candidates before the end of the sophomore year.

STUDY AWAY

Students majoring in a Modern Language are encouraged to spend a summer, a semester, or an academic year in a previously approved program of study at a foreign University as a part of their program. Consult the Chair of the department regarding these possibilities. The Modern Languages and Classics Department, in cooperation with the Canadian-American Center, sends students in the Canada Year Program from Orono to Canadian universities. In past years, UMaine students have attended McGill, l'Université Laval, l'Université du Québec and other schools in Canada. Interested candidates should apply to Canada Year, Canadian-American Center, 154 College Avenue.

The Department of Modern Languages and Classics offers a number of core courses in the Canadian Studies Program, which is an interdisciplinary concentration for undergraduates. These courses examine the literature, culture, and civilization of French Canada. The specific listings appear in the French section below.

The University is administering for the Land Grant Universities of New England a Junior Year Abroad Program in Salzburg, Austria; it is affiliated through CIEE (Council of International Education Exchange) with a year or semester abroad study program at Rennes, France, and Seville and Alicante, Spain.

A credit transfer arrangement exists with the Universities of Avignon, and Aix-en Provence, France, and with the University of Kent in England and a direct exchange of qualified first year students (second semester) with advanced students is sponsored in several German Gymnasien. Arrangements for studies in Canada, e.g., at the Universities of New Brunswick, Nova Scotia, and Québec, can be made through the Canada Year Program.

Up to 36 credits may be earned through these programs, pending previous consent of the Dean, and the department chair involved.

Total immersion programs in French in Québec, in German and in Spanish are offered during the May Term (FRE, GER, SPA 297); three credits per program.

GRADUATE STUDY

The department also offers work leading to a Master's Degree in French and M.A.T. degrees in French, German, and Spanish. See the Graduate School catalog, as well as the Summer Session Catalog, for special aspects involved when the degree is on other than full-time basis.

NATURAL RESOURCES

Professor Mark Anderson (Coordinator)

The Bachelor of Science in Natural Resources is an interdisciplinary program offered cooperatively by the faculties of the Departments of Resource Economics and Policy; Biological Sciences; Applied Ecology and Environmental Sciences; Wildlife Ecology; Forest Ecosystems Science and School of Marine Sciences. Students majoring in the program are taught and advised by over twenty five faculty from several academic departments. The program is designed for students who wish to pursue a professional career in natural resource conservation, management, administration, planning, or research. The degree can also be used in preparation for postgraduate study in several disciplines related to natural resources.

The B.S. in Natural Resources is designed to acquaint students with the scope and characteristics of our natural resources, and to introduce the scientific and economic principles that govern resource use and conservation.

The Natural Resources curriculum is composed of seven requirement areas, amounting to at least 100 credit hours (depending upon selections), plus up to 20 hours reserved for unstructured electives. The requirement areas are as follows: I. Natural Resources Courses; II. Biological and Ecological Science Courses; III. Physical and Chemical Science Courses; IV. Quantitative Skills Courses; V. Communication Skills Courses; VI. Human Values and Social Context Courses; VII. Natural Resources Concentration; VIII. Free Electives.

The requirements are designed so that Natural Resource graduates will be well grounded in both the natural and social sciences, and will possess the skills necessary for a successful career. However, the program is also designed to allow students ample flexibility to pursue individual interests in preparing for careers or postgraduate study.

The Natural Resources concentrations allow a student to pursue a particular aspect of natural resources in depth with an eye toward future employment or postgraduate study. Students should decide on their area of concentration early in their programs so that course choices in the first and sophomore years will include the prerequisites for courses in their chosen concentration. Concentrations currently offered are as follows:

Concentrations currently offered are as follows:

1. Entomology
2. Environmental Sciences
3. Land Use Planning
4. Marine Resources and Sciences
5. Natural History and Ecology
6. Resource and Environmental Policy
7. Soil and Water Conservation
8. Waste Management
9. Individualized Concentration

Area I. The Natural Resources Courses

(10 credits)

NRC 117 First Year Seminar in Natural Resources	1
NRC 100 Introduction to Natural Resources	3
NRC 400 Senior Paper in Natural Resources	3
NRC 489 Critical Issues in Natural Resource Policy	3

Area II. Biological and Ecological Sciences

(19 credits)

BIO 100 Basic Biology	4
INT 319 General Ecology	3
OR	
WLE 200 General Ecology	3

BIO 201 Plant Biology	4
BIO 205 Field Natural History of Maine	4
BIO 204 Animal Biology	4

Area III. Physical and Chemical Sciences

(16 credits)

CHY 121/123 Introduction to Chemistry/Lab	4
CHY 132/134 Applications of Chemistry/Lab	4
GES 101 Introduction to Geology	4
AES 140/141 Soil Science/Lab	4

Area IV. Quantitative and Computer Skills

(10 credits)

MAT 122 Pre-Calculus (or other course in nonstatistical math at the level of MAT 122 or above)	4
MAT 232 Principles of Statistical Inference	3
COS 100 Introduction to Personal Computers	3
OR	
COS 110 Introduction to PC using the MAC	3

Area V. Communication Skills

(9 credits)

ENG 101 College Composition	3
ENG 317 Business and Technical Writing	3
COM 103 Fundamentals of Public Communication	3

Area VI. The Natural Resources Concentrations

(18 credits)

Each student is required to complete at least one natural resource concentration. Each concentration consists of 18 credits, at least 12 of which must be at the 300 level or above. Appropriate course choices must be made in the other 6 requirement areas to satisfy the prerequisites for the chosen concentration.

Several courses are listed under each of the following concentrations. Students are required to build their concentrations largely from the courses on these lists. However, with the approval of the advisor, certain courses not on a list may also be used. For seniors, certain graduate courses may be used in the concentration with approval of the student's advisor. At the beginning of the concentration listings, prerequisite courses and suggested preparatory courses are listed.

1. Entomology

Recommended preparatory course:	
MAT 151 Calculus for the Life Sciences	4
Required concentration course:	
BIO 326 Introductory Entomology	4
Concentration Electives (choose 14 credits, at least 8 credits from 300 to 400 level courses):	
BIO 233 Dendrology	4
BIO 353 Invertebrate Zoology	4
BIO 445 Plant Genetics	3
BIO 448 Insect Pest Ecology and Management	3
BIO 461 Insect Biology, Taxonomy, and Systematics	3
BIO 462 Principles of Genetics	3
BIO 464 Taxonomy of Vascular Plants	4
INT 256 Forest Protection	4
INT 482 Pesticides in the Environment	3

2. Environmental Sciences

Required preparatory courses:	
AT 126 Calculus I	4
AT 127 Calculus II	4
HY 111/112 General Physics I/II	8
HY 251/253 Organic Chemistry I	5
HY 252/254 Organic Chemistry II	5
Recommended Preparatory Course:	
ES 102 Introduction to Geology II	4
Concentration Electives (choose 18 credits, at least 12 credits from 300 to 400 level courses):	
ES 360 Chemical Principles of Environmental Quality	3
ES 440 Soil Chemistry and Plant Nutrition	3
ES 442 Soil Taxonomy	3
ES 444 Soil Morphology and Mapping	3
ES 449 Soil Organic Matter and Fertility	4
EO 468 Limnology	3
EO 467 Wetland and Aquatic Biology	4
IE 331 Fundamentals of Environmental Engineering	3
IE 431 Pollutant Fate and Transport	3
IE 433 Environmental Engineering Chemistry	3
OE 206 Photogrammetry and Remote Sensing	3
TY 407 Forest Ecology	3
TY 457 Forest Watershed Management	3
JT 323 Introduction to Conservation Biology	3
JT 482 Pesticides in the Environment	3
GE 271 Geographic Information Systems	3

3. Land Use Planning

Required concentration course:	
EP 374 Land Use Planning	3
Concentration Electives (choose 15 credits, at least 9 credits from 300 to 400 level courses):	
ES 344 Soil and Water Conservation	2
ES 442 Soil Taxonomy	3
ES 444 Soil Morphology and Soil Mapping	3
CO 444 Urban Economics	3
CO 471 Public Finance and Fiscal Policy	3
OE 206 Photogrammetry and Remote Sensing	3
TY 208 Forest Surveying and Mapping	3
TY 349 Principles of Forest Management	3
TY 480 Applied Geographic Information Systems	3
PAA 370 Urban Policy and Management	3
OS 233 Urban Politics	3
EP 371 Introduction to Natural Resource Economics and Policy	3
EP 473 Land Economics	3
GE 271 Geographic Information Systems	3
GE 321 Legal Aspects of Land Surveying	3

4. Marine Resources and Sciences

Recommended preparatory courses:	
MAT 151 Calculus for the Life Sciences	4
Concentration Electives (choose 18 credits, at least 12 credits from 300 to 400 level courses):	
BIO 210 Introduction to Marine Biology	3
BIO 300 Field Marine Biology	3
BIO 329/331 Vertebrate Zoology	4
BIO 353 Invertebrate Zoology	4
BIO 472 Fishery Biology	4
BIO 473 Biology of Algae	4
MS 211 Introduction to Aquaculture	3
MS 220 Introduction to Marine Resources	2
MS 270 Introduction to Oceanography I	4
MS 340 Finfish Aquaculture	2
MS 409 Shellfisheries Biology	3
MS 420 Fish Health Management	3
MS 467 Fish Nutrition and Feeding	3

5. Natural History and Ecology

Recommended preparatory courses:	
MAT 151 Calculus for the Life Sciences	4
Concentration Electives (choose 18 credits, at least 12 credits from 300 to 400 level courses):	
BIO 220 Insect, Science and Society	3
BIO 233 Dendrology	3
BIO 300 Field Marine Biology	3
BIO 326 Introduction to Entomology	4
BIO 448 Insect Pest Ecology and Management	3
BIO 464 Taxonomy of Vascular Plants	4
BIO 468 Limnology	3
BIO 470 Wetland and Aquatic Biology	3
FTY 407 Forest Ecology	
INT 323 Introduction to Conservation Biology	3
INT 375 Field Studies in Ecology	Arr.
INT 482 Pesticides in the Environment	3
SMS 270 Introduction to Oceanography I	4
WLE 230 Introduction to Wildlife Conservation	2

6. Resource and Environmental Policy

Required concentration course:	
REP 371 Introduction to Natural Resource Economics and Policy	3
Concentration Electives (choose 15 credits, at least 9 credits from 300 to 400 level courses):	
ECO 471 Public Finance and Fiscal Policy	3
FTY 349 Principles of Forest Management	3
FTY 446 Forest Resources Policy	3
HTY 479 U.S. Environmental History	3
INT 323 Conservation Biology	3
INT 330 Waste Management	3
INT 482 Pesticides in the Environment	3
NRC 324 Environmental Protection Law and Policy	3
PAA 220 Introduction to Public Policy	3
PAA 405 Regulatory Process	3
PHI 232 Environmental Ethics	3
POS 361 American Legislative Process	3
POS 388 Public Opinion	3
REP 372 Energy Economics	3
REP 381 Sustainable Development Principles and Policy	3
REP 471 Resource Economics	3
REP 474 Land Use Planning	3
WLE 230 Introduction to Wildlife Conservation	2

7. Soil and Water Conservation

Recommended preparatory courses:	
MAT 126 Calculus I	4
Concentration Electives (choose 18 credits, at least 12 credits from 300 to 400 level courses):	
AES 100 Plant Science	3
AES 344 Soil and Water Conservation	3
AES 360 Chemical Principles of Environmental Quality	3
AES 440 Soil Chemistry and Plant Nutrition	3
AES 442 Soil Taxonomy	3
AES 444 Soil Morphology and Soil Mapping	3
AES 449 Soil Organic Matter and Fertility	4
BIO 467 Wetland and Aquatic Biology	4
BIO 468 Limnology	3

8. Waste Management

Recommended preparatory course:	
MAT 126 Calculus I	4
Required concentration course:	
INT 330 Waste Management	3
Concentration Electives (choose 15 credits, at least 9 credits from 300 to 400 level courses):	

AES 360 Chemical Principles of Environmental Quality	3
AES 440 Soil Chemistry and Plant Nutrition	3
AES 449 Soil Organic Matter and Fertility	4
BIO 468 Limnology	3
BRT 360 Processing Machinery	3
BRT 363 Buildings and Environment	3
BRT 365 Water Supply and Waste Management	3
CIE 331 Fundamentals of Environmental Engineering	3
CIE 433 Environmental Engineering Chemistry	3
REP 371 Introduction to Natural Resource Economics and Policy	3

9. Individualized Concentration

In some cases the standard concentration may not meet adequately the interests or career aspirations of students in this program. Under certain conditions, such students may develop and pursue an individualized concentration of study.

Individualized concentrations obviously must deal with some aspect of natural resources, as is broadly reflected in the degree program at this time. Individualized concentrations may not be developed for areas where degrees are already being offered at the University of Maine. So, for example, while "wildlife" is clearly a natural resource, this would not be an appropriate organizing concept for an individualized concentration since a degree in wildlife may be obtained from another unit of the University of Maine. Individualized concentrations, as all concentrations in the program do, require at least 18 credit hours of study 12 of which must be 300 or 400 level courses.

A student wishing to pursue an individualized concentration should do so in conjunction with an advisor associated with the program. The student should prepare a brief proposal for the concentration, including a narrative explaining the organizing concept of the concentration (essentially a justification), a proposed name of the concentration, and a list of the course that would be taken to complete the concentration. The proposal will need to be approved by the advisor, program coordinator, and Associate Dean for Resident Instruction.

Unstructured Electives

(20 credits)

An unstructured elective is any course for which the University awards academic credit. Students may use these credits to increase their professional job prospects by taking additional courses in their area of concentration or by completing course work in a second area of concentration. Some natural resource students may elect courses in foreign languages to broaden opportunities for employment or for study in other countries. Other students may wish to broaden their knowledge in the arts and humanities.

NAVAL SCIENCE

Professor of Naval Science CAPT Shullo

Associate Professor CDR Stevenson

Assistant Professors LT McCartney, LT Obrist, LT Toepper, CAPT Bowman (USMC)

GENERAL INFORMATION

The Naval ROTC program is designed to train and educate qualified students for commissioning and active service as officers in the United States Navy and United States Marine Corps.

Commissionees also receive a minor degree in Naval Science. In order to be eligible for application for this program a student must:

1. be a U.S. citizen
2. be at least 17 but less than 21 years of age
3. be physically qualified
4. possess satisfactory records of academic ability and moral integrity
5. demonstrate those characteristics desired of a Naval Officer; and
6. have no moral obligation or personal conviction that will prevent the bearing of arms.

The NROTC Scholarship Program offers the following benefits: all tuition paid, books furnished, \$150 per month subsistence allowance during the school year and a substantial uniform allowance. Eligible graduates of this program receive commissions in the United States Navy or Marine Corps and are required to serve on active duty for four years. High school students may apply for the

national scholarship program between March 1st of their High School junior year to November 15th of their High School senior year.

Application forms are available from any Navy recruiter and most guidance counselors. Early application is recommended, as this program is highly competitive. Students already enrolled in UMaine may also be eligible for non-national scholarships. Call the NROTC unit at (207) 581-1551 for further information.

The NROTC College Program offers students not selected to receive a scholarship an opportunity to participate in NROTC. The monetary benefits of the College Program include: a substantial uniform allowance and \$150 per month subsistence allowance during their junior and senior class years. Graduates of the College Program receive commissions and are required to serve on active duty for three years. Students may apply for the College Program from the beginning of their first year to the end of their sophomore year. For further information concerning either program, contact your local Navy recruiter or the University of Maine NROTC unit. Telephone: (207) 581-1551.

SCHOOL OF NURSING

Associate Professor Shipps, (Interim Director)
Associate Professors Bicknell, Brakey, Kuhns-Hastings, Shipps, Symanski, Symonds, Wood
Assistant Professors Brunner, Fishwick, Jude, Powers
Learning Resource Center Manager Marshall

PURPOSE

The purpose of the baccalaureate program is to prepare a professional generalist practitioner of nursing who, through the use of the nursing process, can assist individuals, families and groups in a variety of settings to achieve and maintain optimal health.

Education for the practice of professional nursing demands a substantial knowledge of the social, behavioral and biological sciences as a theoretical base. Beginning in the sophomore year, nursing courses are taken concurrently with courses from other disciplines, thus contributing to the development of the liberally educated practitioner.

The first year establishes a foundation for the study of nursing with an introduction to concepts and theories related to understanding the principles of nursing practice. The first nursing course is given in the sophomore year with focus on introducing the student to the professional role of the nurse. Clinical study begins in the junior year, continues throughout the senior year and includes care of patients/clients in a variety of settings such as hospitals, community health agencies, long-term care facilities, homes, schools and industry.

During the senior year, student experiences are planned to encourage synthesis of the knowledge of the preceding years as it affects individuals, families, groups, and communities. The role of the professional nurse that is introduced in the sophomore year and augmented during the junior year is expanded during the senior year.

The program provides a foundation for graduate and continuing education in nursing and serves as a stimulus for continuing intellectual and personal development. Students who successfully complete the undergraduate program of studies (123-126 credits) are awarded a Bachelor of Science degree with a major in Nursing and are eligible to take the National licensure examination administered by the Board of Nursing in any state. Graduates who successfully pass the licensure examination are eligible to practice nursing as Registered Nurses (R.N.) in the state in which the examination was taken.

GENERAL INFORMATION

Nursing majors are required to have a history and physical examination completed and must have a report on file at the School of Nursing before enrolling in clinical courses. In addition, cardiopulmonary resuscitation (CPR), for professional rescuers must be documented. Nursing majors must purchase uniforms and safety glasses before entry into the junior year. Since clinical learning experiences take place in a variety of settings and geographic locations, it is the student's responsibility to provide transportation to sophomore, junior and senior clinical experiences. A \$15.00 course fee is required per semester in the junior and senior years and professional liability and health insurance is strongly recommended for all nursing students.

All generic senior students in the School of Nursing will be required to take achievement testing as arranged by the School of Nursing. Currently the School is utilizing the Mosby AssessTest. The cost of this testing (currently \$33.00) is the responsibility of the student and should be included in financial planning for the senior year. The time for this exam will be arranged by faculty during the latter part of the spring semester of the senior year.

The School of Nursing sponsors a Recognition Ceremony for graduating seniors each May. Although the majority of expenses are paid by the school, some expenses are the responsibility of the student. Students are also responsible for the purchase of the School of Nursing pin. These expenses may vary each year and students need to check with the School of Nursing office for current costs.

PROGRAM OBJECTIVES

The graduate of the undergraduate program will:

1. synthesize theoretical and empirical knowledge from nursing, the behavioral and the physical sciences and humanities, to provide rationale for professional nursing practice.
2. utilize the nursing process to assist individuals, families, groups and communities throughout the life cycle to promote, maintain, and restore optimal health.
3. demonstrate ethical responsibility, professional accountability, and client advocacy in the practice of nursing.
4. utilize principles of teaching and learning to assist clients to achieve optimal health.
5. analyze the findings of health-related research in planning his/her own professional nursing practice.
6. develop a commitment to life-long learning.
7. utilize leadership skills in collaboration with consumers and health professionals to effect needed changes in the health care delivery system.
8. develop and identify a personal philosophy of nursing which incorporates a commitment to the profession.

ADMISSION

In keeping with the mission of the University of Maine, the School of Nursing admits students from a variety of settings: directly from high schools, transferring from other programs within the University system, transferring from other colleges and universities, and Registered Nurse graduates from diploma and associate degree programs in nursing. All students who wish to be considered for acceptance into the nursing program should file an application with the University of Maine Office of Admissions. In order to be considered for admission by transfer to the Nursing program applicants, both from within the University and from other accredited institutions from outside the system, must have at least a 2.5 minimum grade point average.

R.N. STUDENTS

The R.N. Studies program differs from the traditional curriculum in that assessment of prior learning in nursing is considered as part of the student's program of study. Knowledge and skills in selected areas can be demonstrated through direct articulation or through specific examinations. In addition, courses designed for RN students assist the student to successfully meet the objectives of the baccalaureate nursing program. Please contact the School of Nursing for further details.

GRADING SYSTEM

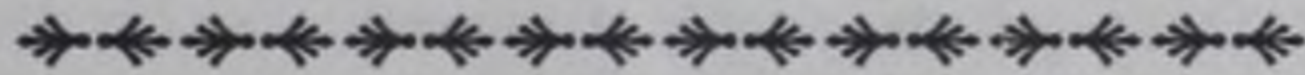
All students enrolled in the nursing program must achieve a minimum accumulative Grade Point Average of 2.60 in order to progress to 300 level nursing courses. Nursing students must earn a minimum grade of "C" in all courses, and may take a maximum of (3) credits in the general elective area on a Pass/Fail basis. Clinical courses are sequential and must be passed with a grade of "C" before progression in the program is permitted. Refer to School of Nursing Student Handbook for additional policies.

A student who earns a "D" or an "E" grade in any required course in the nursing program may repeat that course *one time only*. A student who fails to achieve a satisfactory grade in a repeated required course will not be allowed to continue in nursing and will be disenrolled from the Nursing program.

To be eligible for graduation with a Bachelor of Science degree with a major in nursing, the student must have successfully completed all requirements, have a minimum of 123-126 credit hours and a Grade Point Average of at least a 2.00.

ACCREDITATION

The nursing program is approved by the Maine State Board of Nursing and is accredited by the National League for Nursing. The School is a member of the Council of Baccalaureate and Higher Degree Programs of the National League for Nursing and a member of the American Association of Colleges of Nursing.



CURRICULUM B.S. in NURSING

First Year

Fall Semester

BIO 100 Basic Biology	4
BMB 207 Fundamentals of Chemistry	4
ENG 101 College Composition	3
PSY 100 General Psychology	3
NUR 101 Issues and Opportunities in Nursing	1
General Education or Elective	3
	18

Spring Semester

BIO 208 Anatomy and Physiology	4
BMB 208 Elementary Physiological Chemistry	4
SOC 101 Introduction to Sociology	3
General Education	3
Philosophy	3
	17

Sophomore Year

Fall Semester

BMB 300 General Microbiology	3
BMB 305 General Microbiology Laboratory	2
Growth and Development I	3
General Education	3
General Education	3
General Education or Math	3
	17

Spring Semester

FSN 280 Human Nutrition for the Health Professions	3
MAT 232 Principles of Statistical Inference	3
NUR 200 Professional Concepts in Nursing	3
General Education	3
Nursing Elective or General Education	(2)or(3)
	14 or 15

Junior Year

Fall Semester

BIO 303 Pathophysiology	3
NUR 300 Health Assessment Through the Lifespan	3
NUR 301 Nursing Care Management of Adults I	6
PSY 312 Abnormal Psychology	3
	15

Spring Semester

BIO 404 Fundamentals of Pharmacology	3
NUR 308 Nursing Care Management of Individuals and Families across the Lifespan	9
NUR 410 Health Related Research	3
	15

Senior Year

Fall Semester

NUR 440 Nursing Care Management of Adults II	4
NUR 442 Mental Health and Community Nursing Care Management Concepts I	5
NUR 444 Management and Leadership in Health Care Systems I	2
NUR 446 Clinical Reflection Seminar I	1
General Education	3
	15

Spring Semester

NUR 441 Nursing Care Management of Adults II	2
NUR 443 Mental Health and Community Nursing Care Management Concepts II	2
NUR 445 Management and Leadership in Health Care Systems II	1
NUR 447 Clinical Reflection Seminar II	1
NUR 455 Senior Clinical Practicum	6
General Education	3
	15

SCHOOL OF PERFORMING ARTS

Associate Professor Mikotowicz, Director
Associate Professor Roscetti, Associate Director

MUSIC

Professors Cox, Hallman
Professors Farnham, Hall, F. Heath, Lidral, Marrs, Ogle,
Roscetti, Voronietzky, Wieck
Assistant Professor Wiemann
Director of Sports Bands, Lecturer in Music, C. White
Professors Bertesani, Birch, Crook, S. Heath, Hwalek, Mills, Vogt

Outline of the curricula of the Division of Music
for the baccalaureate degrees follows. Details are available from
the Division of Music, Class of 1944 Hall, (207) 581-4700.

BACHELOR OF ARTS DEGREE WITH A MAJOR IN MUSIC

This program is designed for the study of music within a
bachelor's arts curriculum. The general requirements for the
bachelor's degree described earlier in this catalogue apply to
this degree. It offers a broad coverage of the field of music with
emphasis on the study of the history and theory of music. It furnishes
a background for prospective candidates for advanced
study or preparing for such careers as musicologists,
music librarians. It does not qualify the graduate for
employment as a public school music teacher. Candidates for the
degree are expected to attain a level of performing ability equivalent
to that at the completion of the sophomore year in the
music programs. A senior project is required in lieu of a
thesis. The total number of required semester hours for graduation is
120-133. If a foreign language, which can be either the
language taken in high school or a new language,

BACHELOR OF MUSIC IN MUSIC EDUCATION

This is a four-year professional degree for students who intend
to make music a career either as a public school teacher or supervisor
of music. The degree provides for many professional opportunities
and serves also as preparation for graduate study in music. Upon
satisfactory completion of the music education course of study, the
student is certified to teach music at both the elementary and
secondary levels. A half-hour recital is required in the junior year.
The total number of required semester hours for graduation is 134-
139. All students elect an instrumental concentration or a vocal
concentration, however, a double concentration (instrumental/vocal)
is available, to be noted on student's transcript, for BMed majors.
Interested students should see Prof. Louis Hall.

BACHELOR OF MUSIC IN PERFORMANCE

This degree is designed to assist the gifted music student to
prepare for a career in music performance. It serves also as
preparation for graduate study in music and teaching at the college
level. Emphasis is placed on performance, music theory, music
history, and studies in the liberal arts. The degree is granted in the
following applied music areas: Strings, woodwinds, brass, piano,
harpsichord, voice, guitar, and pipe organ. Graduation requirements
include appropriate proficiency in playing or singing, excellent
memory, substantial repertoire, and musicianship of a high order. A
half-hour recital is required in the junior year and a full recital in the
senior year. The total number of required semester hours for
graduation is 120-133.

ENTRANCE REQUIREMENTS FOR ALL DEGREE PROGRAMS

In addition to meeting the University's admission standards,
applicants must demonstrate musical ability in performance on their
major instrument or voice before a jury of the music faculty.
Auditions and interviews are arranged through the music department
office, where a listing of audition requirements for the various
disciplines may be obtained.

All entering students are required to take diagnostic
examinations in music theory.

GRADUATION REQUIREMENTS

In addition to successful completion of all required course
work, all music degree students must, in order to graduate, pass a
basic proficiency examination in piano. Note: Piano proficiency may
be accomplished through successful completion of MUP 205, 206, 215
and 216. Piano majors are required to pass the proficiency exam for
these courses. No music student other than piano majors will be
allowed to study private piano until completion of MUP 216,
successful completion of the equivalent piano proficiency exam or
permission.

Candidates for the B.A. degree in Music must successfully pass
the sophomore level jury examination on their applied major
instrument or voice.

Candidates for the Bachelor of Music in Music Education
degree must present an approved half-hour public recital in their
junior year.

Candidates for the Bachelor of Music in Performance degree
must present an approved half-hour public recital in their junior year
and an approved one-hour public recital in their senior year.

APPLIED MUSIC FEES

For music majors as well as non-majors a fee will be charged
for private instruction.

Private instruction for the non-music major is contingent on the
student's level of performance as determined by audition, and on the
availability of studio time of the instructor. Arrangements for such
instruction and assignment of a teacher must be made through the
office of the Music Division, School of Performing Arts.

Practice facilities are provided in the Class of 1944 Hall. The
University provides, so far as possible, practice opportunities for
students who take applied music for credit.

COURSES IN APPLIED MUSIC

The Division of Music provides private instruction in
instruments and voice. MUS 201 through MUS 308 designates
semester of study for one credit hour; section number (see below)
designates instrument/voice.

MUS 210 through MUS 380 designates semester of study for
two credit hours; section number (see below) designates instrument/
voice.

MUS 450-480 designates study for 4 credit hours
section number designates instrument/voice. These courses
are open only to students who have been accepted in the BM in
Performance Degree Program, and who have successfully completed
the junior standing jury examination. An applied music fee applies to
these courses. The student receives one hour of studio instruction

weekly. The additional credit awarded reflects the time the student will require to meet the higher expectations of advanced performance degree candidates.

Candidates for Bachelor of Music in Performance degree enroll for 2 hours of credit for the first two years of study on the major instrument or voice, and 4 hours of credit for the 3rd and 4th years of study. Candidates for the B. Mus in Mus. Ed. enroll for two hours of credit for the major instrument or voice for a total of 12 credit hours. Students in both programs enroll for one hour credit in secondary instrument or voice. B.A. candidates majoring in music and all other students normally enroll for one hour of credit.

B.MUS in Performance

First level	MUS 210-220
Second level	MUS 230-240
Third level	MUS 450-460
Fourth level	MUS 470-480

B.M. in MUS ED

First level	MUS 210-220
Second level	MUS 230-240
Third level	MUS 350-360

B.A.

First level	MUS 201-202
Second level	MUS 203-204
Third level	MUS 305-306
Fourth level	MUS 307-308

The student who does not meet the requirements for the level at the end of each semester as determined by the jury examination will continue on the previous level until the requirements are met. Upon completion of 8 credit hours of work in Applied Music, music majors will be reviewed by a jury composed of the faculty of the Division of Music to determine whether they should be advanced to upper level standing in applied music.

	Instructor
1 baritone horn	F. Heath
2 bass	Wieck
3 bassoon	Staff
4 cello	Roscetti
5 clarinet	Staff
6 flute	S. Heath
7 french horn	Staff
3 classical guitar	Crook
3 harpsichord	Birch
1 oboe	Hall
1 organ	Birch
2 percussion	Marrs
3 piano	Voronietsky
4 saxophone	Hall, Lidral
5 trombone	F. Heath
5 trumpet	Nashan
7 tuba	F. Heath
3 violin	Wieck
3 viola	Wieck
1 voice	Hallman/Mills/Ogle/Vogt

Courses in applied music may be repeated for credit.

Each student taking instruction in an applied area must take an examination before a jury of the faculty of music at the end of each semester. All music majors enrolled in applied music are required to enroll in MUS 100 (Recital Lab) each semester of study.

THEATRE/DANCE

Associate Professors Hardy, Merritt, Mikotowicz, Snider

Assistant Professor Riggins

Instructors Holyoke, Ross

Requirements for the B.A. in Theatre consist of the general requirements for the College of Liberal Arts and Sciences, 48 credit hours in the major, and intermediate proficiency in a modern language. In addition to the general B.A. degree in Theatre, concentrations are offered in Acting; Directing; Design and Technical Production; Literature, History and Criticism; and Dance. Specific requirements for the major and the concentration are available from the School of Performing Arts, Class of 1944 Hall.

All majors are expected to participate in the mainstage and studio theatre and dance productions, which provide the lab adjunct to classroom learning. The Maine Masque Theatre produces four to five mainstage theatre and dance productions per year in Hauck Auditorium, a proscenium theatre facility with 550 seats; and several student-directed studio productions in the Al Cyrus Pavilion, a 120-seat, 3/4 round facility. All University of Maine students are eligible to audition for the plays and to participate in all aspects of the production program. The division of Theatre/Dance also offers a Master of Arts degree, with a creative thesis option. Further details may be found in the Graduate School Catalog.

PHILOSOPHY

Associate Professor Howard (Chairperson)
Professors Allen, Skorpen, White
Assistant Professor King

Philosophy is rigorous reflection on human nature, culture, and the world. It is analytic in clarifying the concepts and methods particular to the humanities and to the sciences. It is synthetic in interpreting the descriptive and evaluative findings of all branches of human inquiry, including its own. It is also essential to the development of professional, occupational, environmental, and applied ethics elsewhere.

GENERAL EDUCATION AND B.A. REQUIREMENTS

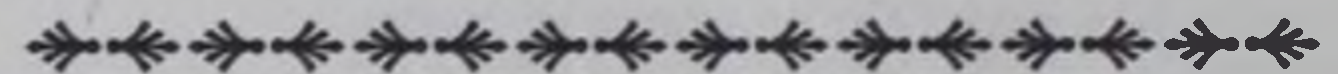
Courses taken in Philosophy may be used toward fulfilling the distribution requirement for the B.A. degree. Different Philosophy courses satisfy general education curriculum requirements in Ethics, Western Cultural Tradition, Social Contexts and Institutions, Cultural Diversity and International Perspectives, Population and Environment, Artistic and Creative Expression, Writing Intensive, and Mathematics. Philosophy courses open without prerequisite are: PHI 101, The History and Problems of Self-Knowledge; PHI 102, Philosophy and Modern Life; PHI 103, Methods of Reasoning; PHI 105, Introduction to Religious Studies; PHI 106, Social Issues in Recent Religious and Philosophical Thought; and PHI 107, Existentialism.

PHILOSOPHY MAJOR

Requirements for the Philosophy major are:

1. A minimum of 30 hours in philosophy;
2. At least 21 hours (seven courses) in philosophy must be upper level courses, i.e., courses above the 100 level;
3. PHI 200;
4. Six hours in the History of Philosophy sequence (PHI 210 (which is required), plus one of the following PHI 312, PHI 320, or PHI 322.
5. PHI 475 Junior/Senior Philosophy Seminar;
6. A minimum grade of "C-" for courses to count toward the major.

The department encourages double majors. We recognize that requirements of other departments may make it difficult or impossible for a student to complete a double major and the above requirements—especially when the decision for a double major comes late in a student's undergraduate career. Accordingly, the department will accept petitions for waiver of one or more of the requirements. Petitions are assessed on a case by case basis.



A TYPICAL FOUR-YEAR PROGRAM IN PHILOSOPHY

First Year

Two 100-level philosophy courses

Sophomore Year

PHI 200 Problems in Recent Philosophy
PHI 210 History of Ancient Philosophy
PHI 312 History of Modern Philosophy

Junior Year

Two or three upper level philosophy courses, possibly including PHI 475

Senior Year

Two or three upper level philosophy courses, including PHI 475 (if not taken in Junior Year)

PHILOSOPHY MINOR

For information regarding the Philosophy minor see "Minor in Index."

PHYSICS AND ASTRONOMY

Professor Brownstein (Chairperson)
 Professors Comins, Hess, Kleban, Lad, Morrow, Smith, Unertl
 Associate Professors Batuski, McClymer, McKay, Mountcastle
 Assistant Professor Harrington
 Lecturer Clark
 Cooperating Professor Rasaiah

The Department of Physics and Astronomy offers programs of study in the College of Liberal Arts and Sciences that lead to the degrees of Bachelor of Science in Physics and Bachelor of Arts in Physics. The B.S. degree is customarily the prerequisite for graduate education in physics, astronomy or related areas preparatory for careers in basic or applied research and development. The B.S. degree places a strong emphasis on physics and mathematics. The B.A. degree in physics is a traditional liberal arts program emphasizing physics together with a substantial distribution of course work outside the areas of science and mathematics. The B.A. degree, in addition to preparing the student for an entry level position in industry can accommodate pre-medical preparation, secondary science education certification, pre-law and technical writing careers, to name only a few.

The B.S. degree in physics is summarized by a specimen curriculum which illustrates the required and elective courses and shows each of the eight undergraduate semesters in which it is suggested that they be taken. The B.S. degree requires a minimum of 49 credit hours of physics (9 of which are elective) 22 hours of mathematics (3 of which are elective) and 10 credit hours of approved science and computer sciences courses (3 of which are elective). In addition, the student must take 18 credit hours in humanities and social sciences chosen to meet the college B.S. requirements, SCS 100 and ENG 101, and 17 credit hours of additional free electives for an overall total of 120 credit hours.

The B.A. degree in physics is summarized by two specimen curricula: one shows a program distributed over eight semesters and the other illustrates an arrangement of the degree requirements that can be initiated in the Fall term of the sophomore year.

The B.A. degree in physics requires a minimum of 35 credit hours in physics, 16 credit hours in mathematics, and six additional credit hours of approved science, engineering, or mathematics electives. The 35 credit hours in physics must include PHY 121 and PHY 122 (or PHY 111 and PHY 112), PHY 229, PHY 230, PHY 236, PHY 238, PHY 488 and PHY 489). It must also include at least two credit hours of 400 level laboratory course work in physics, and at least four 400 level courses chosen from AST 451, AST 452, INT 454, PHY 447, PHY 451, PHY 454, PHY 455, PHY 462, PHY 463, PHY 469, PHY 470, PHY 472, and PHY 480. (In order to accommodate pre-medical students and others with special course requirements, one or two of these 400 level physics courses may be replaced by 300 or 400 level courses from other sciences, with the permission of the major advisor. Note, however, that the 35 credit hour requirement in physics must still be met). The 16 credit hours in mathematics must include MAT 126, MAT 127, MAT 228 and MAT 259 or their equivalents. The following courses may not be used to satisfy the 35 credit hour requirement in physics: PHY 101, 102, 105, and AST 114. Also, only one of AST 109, 215, 216 may be used.

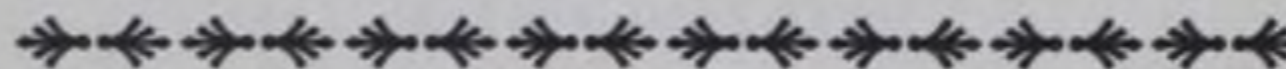
PHYSICS AND COOPERATIVE EDUCATION

Physics majors in good standing who have completed 18 credit hours in physics may participate in the Cooperative Education Program. Cooperative Education is the integration of practical work experience, obtained through specific periods of employment in industry, business, or government, into the on-campus classroom and

laboratory course curriculum. A student in the Cooperative Education Program works as a paid employee in a professional environment at a job selected by mutual agreement with the student, employer and the Cooperative Education Coordinator in the Department of Physics and Astronomy. Academic credit is received through enrollment in PHY 496, Field Experience in Physics.

GRADUATE PROGRAMS IN PHYSICS

The degree of Master of Science and Doctor of Philosophy are offered in Physics. The Department also offers the degree of Master of Science in Engineering Physics. See the Graduate School catalog for curricular details.



SUGGESTED CURRICULUM B.S. in PHYSICS

First Year

First Semester

ENG 101 English Composition	3
MAT 126 Calculus I	4
PHY 121 Physics for Engineers and Physical Scientists I	4
SCS 100 Majoring in the Sciences	1
Humanities Elective I	3
	<hr/>
	15

Second Semester

COS 220 Introduction to Computer Science I	3
MAT 127 Calculus II	4
PHY 122 Physics for Engineers and Physical Scientists II	4
Humanities Elective II	3
	<hr/>
	14

Sophomore Year

First Semester

CHY 121 Introduction to Chemistry *	3
CHY 123 Introduction to Chemistry Laboratory *	1
MAT 228 Calculus III	4
PHY 229 Physical Measurements Laboratory I	2
PHY 236 Introductory Modern Physics	4
Social Science Elective I	3
	<hr/>
	17

Second Semester

CHY 132 Applications of Chemistry	3
CHY 134 Applications of Chemistry Laboratory	1
MAT 259 Differential Equations	3
PHY 230 Physical Measurements Laboratory II	2
PHY 238 Mechanics	3
Elective	3
	<hr/>
	15

The student must include among elective courses those courses needed to satisfy the distribution requirements for the B.S. degree in the College of Liberal Arts and Sciences.

Junior Year

First Semester

MAT 453 Partial Differential Equations I	3
PHY 441 Physical Electronics Laboratory	2
PHY 454 Electricity and Magnetism I	3
Humanities/Social Science Elective	3
Free Elective	3
	14

Second Semester

PHY 442 Modern Experimental Physics	2
PHY 455 Electricity and Magnetism II	3
Physics Elective I	3
Mathematics Elective	3
Free Elective	3
	14

Senior Year

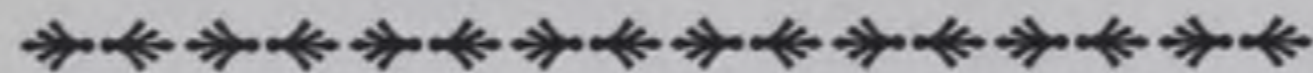
First Semester

PHY 469 Quantum and Atomic Physics	3
PHY 481 Project Laboratory I	3
PHY 488 Physics Seminar I	1
Physics Elective II	3
Free Electives	6
	16

Second Semester

PHY 463 Statistical Mechanics	3
PHY 489 Physics Seminar II	1
Physics Elective III	3
Humanities/Social Science Elective	3
Free Elective	6
	16

TOTAL CREDITS REQUIRED: 121



SUGGESTED CURRICULUM B.A. in PHYSICS

First Year

First Semester

MAT 126 Calculus I	4
PHY 111 General Physics I	4
OR	
PHY 121 Physics for Engineers and Physical Scientists I	(4)
SCS 100 Majoring in the Sciences	1
Electives**	6
	15

Second Semester

MAT 127 Calculus II	4
PHY 112 General Physics	4
OR	
PHY 122 Physics for Engineers and Physical Scientists II	(4)
Electives	6
	14

Sophomore Year

First Semester

CHY 121/123 Introduction to Chemistry/Lab*	4
MAT 228 Calculus III	4
PHY 229 Physical Measurements Laboratory I	2
PHY 236 Introductory Modern Physics	4
	14

Second Semester

CHY 132/134 Applications of Chemistry/Lab*	4
MAT 259 Differential Equations	3
PHY 230 Physical Measurements Laboratory II	2
PHY 238 Mechanics	3
Elective	3
	15

Junior Year

First Semester

MAT 453 Partial Differential Equations I	3
PHY 441 Physical Electronics Laboratory	2
PHY 454 Electricity and Magnetism I	3
Electives	7
	15

Second Semester

PHY 442 Modern Experimental Physics	2
PHY 455 Electricity and Magnetism II	3
PHY 472 Geometrical and Fourier Optics	3
PHY 473 Modern Optics Lab	1
Math Elective	3
Elective	3
	15

Senior Year

First Semester

PHY 469 Quantum and Atomic Physics	3
PHY 488 Physics Seminar I	1
PHY 481 Project Laboratory I	3
Elective	9
	16

Second Semester

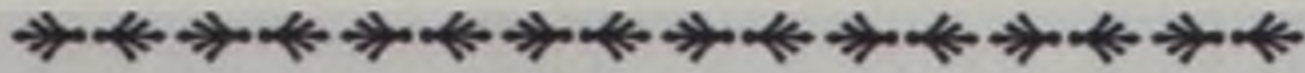
PHY 489 Physics Seminar II	1
Physics Elective	3
Electives	12
	16

TOTAL CREDITS REQUIRED: 120

* Taken in the sophomore, or junior year.

** The student must include among elective courses those courses needed to satisfy the distribution requirements for the B.A. degree in the College of Liberal Arts and Sciences.

A student preparing for graduate work in physics is advised to take some or all of the following electives in his or her junior or senior year: PHY 462, Physical Thermodynamics; PHY 463, Statistical Mechanics; PHY 480, Physics of Materials; PHY 470, Nuclear Physics, as well as additional courses in mathematics.



SUGGESTED CURRICULUM B.A. in PHYSICS
STARTING IN SOPHOMORE YEAR

First Year

each semester of the First year, 15 hours of elective courses can be taken from areas other than Physics.

Sophomore Year

First Semester

MAT 126 Calculus I	4
PHY 111 General Physics I	4
OR	
PHY 121 Physics for Engineers and Physical Scientists I	(4)
Electives**	6
	14

Second Semester

MAT 127 Calculus II	4
PHY 112 General Physics II	4
OR	
PHY 122 Physics for Engineers and Physical Scientists II	(4)
Electives	9
	17

Junior Year

First Semester

MAT 228 Calculus III	4
PHY 229 Physical Measurements Laboratory I	2
PHY 236 Introductory Modern Physics	4
Electives	6
	16

Second Semester

MAT 259 Differential Equations	3
PHY 230 Physical Measurements Laboratory II	2
PHY 238 Mechanics	3
PHY 472 Geometrical and Fourier Optics	3
Elective	3
	14

Senior Year

First Semester

PHY 441 Physical Electronics Laboratory	2
PHY 454 Electricity and Magnetism I	3
PHY 488 Physics Seminar I	1
Physics elective	3
Electives	6
	15

Second Semester

PHY 455 Electricity and Magnetism II	3
PHY 442 Modern Experimental Physics	2
PHY 489 Physics Seminar II	1
PHY 481 Project Laboratory I	3
Electives	6
	15

TOTAL CREDITS REQUIRED: 121

** The student must include among elective courses those courses needed to satisfy the distribution requirements for the B.A. degree in the College of Liberal Arts and Sciences.

A student preparing for graduate work in physics is advised to take some or all of the following electives in his or her junior or senior year: PHY 462, Physical Thermodynamics; PHY 463, Statistical Mechanics; PHY 480, Physics of Materials; PHY 470, Nuclear Physics, as well as additional courses in mathematics.

POLITICAL SCIENCE

Professor Moen (Chairperson)
Professors Horan, K. Palmer, Warhola
Associate Professors Baktiari, Cody, Cole, M. Palmer

Political Science examines the nature of politics—the substance and forms of political life—in its many and varied aspects, from diverse perspectives. The requirements for majors in the department teach students to think critically about the fundamental theories, principles, institutions, and practices of politics in their social and historical contexts. Course work in the department is required in four main subfields of the discipline of political science—American Politics, International Relations, Comparative Politics, and Political Theory—so that students will acquire the knowledge and skills for further study in law school or graduate school, or will be prepared for careers in public service or related fields. Opportunities for internships and for independent study with faculty are also available. The department further encourages its students to pursue related work in the humanities and social sciences so that their political studies fall within the context of a liberal arts education.

SPECIFIC REQUIREMENTS FOR MAJORS

ENTRANCE REQUIREMENTS:

A minimum grade point average of 2.0 at the time of entrance.

MAJOR REQUIREMENTS:

1. POS 100, American Government.
2. A minimum of 36 credit hours in POS courses with grades of "C" (2.0) or better.
 - a. The 36 hours must be distributed as follows:

American Politics	6
International Relations	6
Comparative Politics	6
Political Theory	6
POS Electives	12
TOTAL	36
 - b. At least 21 of the 36 hours must be at the 300, 400, or 500-level.

American Politics

POS 203 American State and Local Government
POS 256 American Political Parties
POS 282 Introduction to American Law
POS 351 The American Presidency
POS 352 American Public Opinion
POS 359 Topics in American Government
POS 360 American Federalism and State Government
POS 362 Maine Government
POS 383 American Constitutional Law
POS 384 American Civil Liberties
POS 451 The American Congress
POS 452 American Interest Groups
POS 549 Seminar in American Politics

Three credit hours of an internship or field experience course related to American Politics may be used toward satisfying this subfield requirement.

International Relations

POS 120 Introduction to World Politics
POS 273 International Relations

POS 372 Canadian Foreign Policy
POS 374 American Foreign Policy
POS 377 International Law
POS 378 World Order Through International Organization and Law
POS 379 The Evolving United Nations
POS 469 Politics of the Middle East
POS 474 Instruments of American Foreign Policy Making
POS 475 International Security
POS 476 Seminar in World Politics

Three credit hours of an internship or field experience course related to International Relations may be used toward satisfying this subfield requirement.

Comparative Politics

POS 241 Introduction to Comparative Politics
POS 243 Canadian Government and Politics
POS 335 Major Governments of Western Europe
POS 336 Government and Politics in Russia and Former Soviet Territories
POS 344 Public Policy in Canada
POS 456 Canadian Political Parties
POS 463 Seminar in Canadian Politics
POS 467 African Politics
POS 531 Topics in Comparative Politics

Political Theory

POS 200 Political Ideologies
POS 201 Introduction to Political Theory
POS 301 Classical Political Thought
POS 302 Medieval Political Thought
POS 303 Early Modern Political Thought
POS 304 American Political Thought
POS 305 Late Modern Political Thought
POS 401 Seminar in Political Theory

Internship and Independent Study Courses

INT 494 Field Experience
POS 493 State Government Internship
POS 495 Congressional Internship
POS 496 International Affairs Internship
POS 498 Independent Study in Political Science

Majors within the department may not receive more than a total of 12 credit hours toward graduation for any combination of internships and field experience, and not more than 6 credit hours may be used toward the departmental major. A field supervisor normally participates in the evaluation of an internship or field experience course.

REQUIREMENTS FOR THE INTERNATIONAL AFFAIRS MAJOR IN POLITICAL SCIENCE

Students who wish to declare a major in International Affairs/Political Science must have a minimum grade point average of "C" (2.0). Under this major students must take 27 hours in Political

Science courses with minimum grades of "C." Courses required include: POS 100-American Government or POS 120-Introduction to World Politics, as well as additional 24 credit hours in Political Science courses with an international focus. Students must take nine

hours each of courses with an international focus in the Departments of Anthropology, Economics, and History; and six hours of a modern foreign language beyond the intermediate level. (See full listing of these courses under International Affairs).

PSYCHOLOGY

Professor Gold (Chairperson)

Professors M. Elias, Farthing, Martindale, Ryckman, Stubbs, Thorpe

Associate Professors Frey, D. Hayes, M. Hayes, Hecker (Director of Psychological Services), Kulberg, LaFreniere (Director of Child Study Center

Rosenwasser, Sigmon, Smith

Assistant Professors Erdley, Nangle, Yelland, Zeman

Cooperating Adjunct Professors Hoffman, Rosen

Clinical Professor Jacobsohn

Clinical Associate Professors Avery-Leaf, Hess, McKay, Pelletier, Sherrets

Clinical Associates Ashton, Cuddy, Fink, Herren, Houde, Mosher, Pierce, Podraza, Santilli, White, Zellinger

Faculty Associate Russ

Research Associates P. Elias, Robbins

The instruction offered by the Department of Psychology is designed to acquaint the student with psychology as a biological science and as a social science. The department offers courses that introduce the student to psychological theory, methodology, research findings, and applications of psychological principles.

REQUIREMENTS FOR A MAJOR IN PSYCHOLOGY

The following requirements are in effect for students who entered the University of Maine Fall 1995 or after. Students who entered the University of Maine prior to Fall 1995 may elect to follow these requirements or may follow the requirements that were in effect when they entered the university (see the department administrative assistant for details).

1. Students must have a GPA of 2.0 or better to declare a major in Psychology.
2. A minimum of 35 hours in psychology courses (Note: 48 hours in psychology is the maximum amount of credit that will count toward the 120 hours needed to graduate.)
3. The following required courses must be passed with a grade of "C-" or better. PSY 100 General Psychology—prerequisite for all other psychology courses PSY 341 Statistics in Psychology I PSY 345 Principles of Psychological Research—prerequisite: PSY 341. PSY 470 History and Systems of Psychology (may be taken in the junior or senior year)

Students must take at least one course from each of the following groups:

Biological Psychology

PSY 309 Psychology of Consciousness PSY 361 Sensation and Perception PSY 363 Mechanism of Animal Behavior PSY 365 Physiological Psychology PSY 465 Hormones, Brain and Behavior

Cognitive Psychology

PSY 350 Cognition PSY 351 Psychology of Motivation PSY 352 Learning PSY 356 Theories of Learning PSY 358 Decision Making and Risk Taking

Personality and Social Psychology

PSY 308 Theories of Personality PSY 330 Social Psychology

Abnormal and Developmental Psychology

PSY 312 Abnormal Psychology PSY 323 Psychology of Childhood PSY 324 Psychology of Adolescence

4. Students are required to pass the following courses outside of psychology with a grade of at least "C-": BIO 100 Basic Biology COS 100 Introduction to Personal Computers (DOS) OR COS 110

Introduction to Personal Computers (MAC) OR COS 220

Introduction to Computer Science I

5. Majors must accumulate a minimum grade point average of 2.0 in PSY courses.
6. No more than six hours of PSY 492, Problems in Psychology, may count toward the 35 hours required.
7. No more than three hours of PSY 493, Field Experience may count toward the 35 hours required.
8. Students who transfer from other institutions must take a minimum of 24 hours within the department.

Psychology majors planning on attending graduate school in psychology are encouraged to take PSY 420 and PSY 421 (Child Study Labs), all the courses offered in psychology methodology (PSY 341, PSY 342, PSY 345), several courses in general experimental psychology, and PSY 492. PSY 492, Problems in Psychology, affords students an opportunity to pursue psychological research in conjunction with one or more faculty members. A minimum grade of "B" in these courses is indicative of ability to do graduate work.

Students who plan to enter vocations focussing on children can obtain a specialized background for that work by taking courses in the developmental psychology area. These include: PSY 323, PSY 324, PSY 420, PSY 421, PSY 425, PSY 426, PSY 428, PSY 429, PSY 522, PSY 524, PSY 525, PSY 526 and PSY 527.

Selected students may participate in the University Affiliated Program (UAP) in the Department of Pediatrics at Eastern Maine Medical Center. An Interdisciplinary concentration in Disability Studies is required. (See Index.)

Students interested in the area of social psychology have many available courses including: PSY 330, PSY 332, PSY 339, PSY 561, and PSY 565.

Courses numbered 500-599 are graduate courses that are open to both undergraduate and graduate students. Junior and/or senior psychology majors are encouraged to enroll in some of these courses (especially 522, 524, and 561) if possible. Undergraduates do not compete with graduate students for grades in such courses. Undergraduates require permission of the instructor to register for 500-level courses.

REQUIREMENTS FOR A MINOR IN PSYCHOLOGY

For specific information regarding the minor in psychology refer to the index.

PUBLIC ADMINISTRATION

Professor Taylor (Chairperson)

Professor Ballard

Associate Professors Laverty, MacRae, Mageean

Assistant Professors Ball, Lavigne, Nichols

The Department of Public Administration addresses questions of governance in democratic society, political values in public service, and the formulation, development, and results of public policies. Our programs have three primary goals: (1) to help students to become better participants in democratic society; (2) to prepare students for careers in public service; and (3) to prepare students for further study and education.

The undergraduate major in public administration combines superior, nationally-recognized instruction within a liberal arts based and significant opportunities for practical experience. The major introduces many of the skills necessary for understanding and participating in public affairs, including critical thinking, effective speaking and writing, and research and analytical capabilities.

The Department has working relationships with many academic and research units across the campus. The Department has especially close working partnership with the Margaret Chase Smith Center for Public Policy, New England's premier policy research center. The Department and Center participate in a range of research and public service projects for the State of Maine and the New England Region. Recent activities have included a statewide conference on "Restructuring State Government," speeches and policy papers on Total Quality Education, and a range of workshops and institutes for employees in the public and non-profit sectors.

CAREER OPPORTUNITIES

Public service career opportunities have been expanding dramatically in response to the changing needs of our dynamic society. Graduates have entered careers at all levels of government—local, regional, state, national and international. They have been employed in general administrative positions as well as in specialized positions such as budgeting and financial management, public relations, human resources management, and program evaluation. Substantive policy areas of particular strength in the Department include health and mental health policy, educational policy, environmental policy and administration, and technology policy. Typical positions can be found in city and town management, state government, a broad range of planning agencies and commissions, and the federal government. Many students have found rewarding careers in small businesses, large corporations, interests groups, and hospitals and other non-profit organizations. Many of our students continue their education by entering the Masters Program in Public Administration, the Department's individualized Ph.D. program, other graduate programs in the social sciences, law school, or graduate programs in business.

A TRADITION OF EXCELLENCE

The Department's undergraduate, B.A. in Public Management program, founded in 1945, is the oldest public management major in the nation. The program has particular strength in state and local government, policy, and administration. Founded in 1968, the Master's of Public Administration is offered in Orono and Augusta. It is accredited by the National Association of Schools of Public Administration, and is one of about 124 accredited graduate programs in the nation. The Department also offers the Ph.D. in Public Administration through the Individualized Ph.D. Program of the University.

Students enjoy three advantages through their work in the Department. First, the faculty are fundamentally committed to teaching and to helping students learn about democracy and experience work in the public sector. Second, faculty enjoy national reputations for their research and scholarship; thus, our degree is competitive throughout the country. Thirdly, public service is central to our mission; our programs provide a variety of opportunities for practical learning and participation through internship opportunities.

ETHICAL STANDARDS

Public servants are endowed with the public trust and, therefore, are held to the highest standards of ethical and professional conduct. The Department of Public Administration expects all of its students to uphold the highest ethical standards. It is the responsibility of students to be aware of the Department's policy on ethical standards, sanctions and appeals process. All of the above are available at the Department of Public Administration Office in 239 North Stevens Hall. Violation of these standards can result in dismissal from the Department and its courses, as well as a failing grade for a course.

THE UNDERGRADUATE MAJOR IN PUBLIC ADMINISTRATION

Specific requirements for a Major in Public Administration:

1. Must have a minimum grade point average of 2.00 in order to declare a PAA major.
2. Must have a minimum of 27 credit hours in courses designated "PAA" with a grade of "C" or better.
3. Must have a minimum grade point average of 2.50 in all PAA courses.
 - A. FOUNDATION COURSES The following foundation courses are required and students are strongly encouraged to take them as soon as possible. POS 100 American Government PAA 200 Public Management ECO 120 Microeconomics OR ECO 121 Macroeconomics
 - B. CORE COURSES The following four core courses are required by all majors. PAA 220 Introduction to Public Policy PAA 315 Statistics in Public Management PAA 340 Public Budgeting PAA 350 Public Workforce Development
 - C. ELECTIVES: 15 hours of electives are required, 12 hours of which must be in PAA courses. Electives outside the PAA Department must be approved in advance by the faculty advisor. Students are encouraged to take electives to gain expertise in specific areas of interest. PAA electives are listed below: PAA 100 The Citizen and the Administrative State PAA 233 Urban Politics PAA 240 Introduction to Government Accounting PAA 370 Local Government Administration PAA 390 Critical Analysis in Public Administration PAA 400 Issues in Public Administration PAA 405 The Regulatory Process PAA 410 Local Government Law PAA 425 Health Care and Human Services PAA 430 Institutional Change PAA 493 Public Administration Internship PAA 495 Municipal Government Internship PAA 498 Independent Readings in Public Administration INT 494 Field Experience
 - D. CONCENTRATIONS: Students are encouraged to develop concentrations in specific topic areas, for example, in local or state government, health policy, environmental policy, economic policy,

etc. In addition to enriching your undergraduate experience, such concentrations will improve your opportunities for public sector careers and graduate school.

The department enjoys a long history and excellent reputation related to town and city management and offers two concentrations, one in local government and one in criminal justice. The following courses can be used to structure a concentration in local government administration or criminal justice administration:

- PAA 233 Urban Politics
- PAA 240 Introduction to Governmental Accounting
- PAA 370 Local Government Administration
- PAA 400 Issues in Public Administration
- PAA 405 The Regulatory Process
- PAA 410 Local Government Law
- PAA 493 Public Administration Internship
- PAA 495 Municipal Government Internship

E. Related elective courses from other disciplines:

- COM 103 Fundamentals of Public Communication
- PHI 231 Topics in Applied Ethics
- PHI 244 Philosophy of Law

- POS 383 American Constitutional Law
- POS 384 American Civil Liberties
- PSY 312 Abnormal Psychology
- PSY 330 Social Psychology
- SOC 202 Social Problems
- SOC 214 Crime and Criminal Justice
- SOC 215 Juvenile Delinquency
- SOC 314 Law and Society
- SOC 338 Race and Ethnicity

REQUIREMENTS FOR THE MINOR IN PUBLIC MANAGEMENT

For specific information regarding the Minor in public management refer to the Index.

Further information may be obtained by contacting: Thomas Taylor, (Chairperson), Department of Public Administration, 57 North Stevens Hall; Room 239, University of Maine, Orono, Maine 04469-5754. Phone (207) 581-1872.

BACHELOR

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Environment
Resource Eco
Three

RESOURCE ECONOMICS AND POLICY

Professor Reiling (Chairperson)
 Professors Boyle, Criner, Kezis, Smith, Watkins, Wilson
 Associate Professors Cheng, Leiby, White
 Assistant Professors Plantinga, Teisl

BACHELOR OF SCIENCE IN RESOURCE MANAGEMENT AND ENVIRONMENTAL POLICY

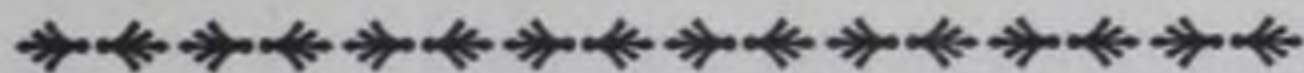
The Bachelor of Science in Resource Management and Environmental Policy is offered by the faculty of the Department of Resource Economics and Policy.

Three areas of concentration are available: Agribusiness Administration, Agribusiness Management and Environmental Management and Policy. Agribusiness Administration is a 5 year program jointly offered with the College of Business, Public Policy and Health. It provides a unique opportunity to earn both a bachelor's degree in Resource Management and Environmental Policy and a Master's of Business Administration.

The department's programs are designed to provide students with the skills needed to assume managerial positions in the natural-resource based sectors of the economy, and to manage important environmental resources. The program provides a broad education in economics, business and the technical areas required to manage environmental resources.

Areas of instruction include the business and economic aspects of managing natural and environmental resources. In the agribusiness-related concentrations, topics such as marketing, production, finance and business management as they apply to resource-based firms are stressed. In contrast, the environmental management and policy concentration emphasizes economic and social issues important to the management of environmental resources. All concentrations require an integrated base of courses in the sciences, social sciences, communications, arts, and humanities.

Employment opportunities for graduates of the agribusiness-related concentration exist in resource-based firms in manufacturing, finance, credit and insurance, wholesale and retail trade, services, and input supply firms. Environmental management and policy graduates are employed by business, government and non-profit organizations involved in the management of the environment. Opportunities for advanced degrees exist for qualified students in all three concentrations.



CURRICULUM IN ENVIRONMENTAL MANAGEMENT AND POLICY

NFA 117 Issues and Opportunities 1

Basic Sciences

BIO 100 Basic Biology 4

Lab Science Elective 4

TOTAL HOURS 8

Communications

ENG 101 College Composition 3

ENG 317 Business and Technical Writing 3

COM 103 Fundamentals of Public Communication 3

TOTAL HOURS 9

Humanities and Social Sciences

XXX (Electives should be chosen to complete University of Maine General Education Requirements.) 18

Mathematics and Statistics

MAT 114/115 Mathematics for Business and Economics I/II 6

OR

MAT 126 Calculus I (4)

MAT 215 Introduction to Statistics for Business and Economics 3

COS 100 Introduction to Personal Computers 3

TOTAL HOURS (10)-12

Foundation Courses

NRC 100 Introduction to Natural Resources 3

OR

INT 105 Environmental Policy (3)

BUA 201 Principles of Accounting I 3

OR

PAA 240 Introduction to Government Accounting (3)

ECO 120 Principles of Microeconomics 3

ECO 121 Principles of Macroeconomics 3

ECO 420 Intermediate Microeconomics 3

PAA 200 Public Management 3

TOTAL HOURS 18

Management and Policy Courses

REP 371 Introduction to Natural Resource Economics and Policy 3

REP 471 Resource Economics 3

REP 474 Land Use Planning 3

REP 489 Seminar 2

ECO 372 State and Local Government Finance 3

NRC 324 Environmental Protection Law 3

Select Two:

REP 372 Energy Economics (3)

REP 381 Sustainable Development (3)

REP 468 Quantitative Analysis (3)

BUA 330 Personnel Management (3)

ECO 368 Economics of Regulation (3)

ECO 445 Urban-Regional Economics (3)

FTY 444 Forest Resources Economics (3)

FTY 446 Forest Resources Policy (3)

PAA 340 Public Budgeting (3)

PAA 405 The Regulatory Process (3)

TOTAL HOURS 23

Environmental Ecological Management Courses

WLE 200 Ecology (Lab not open to non-majors) 3

OR

INT 319 General Ecology (3)

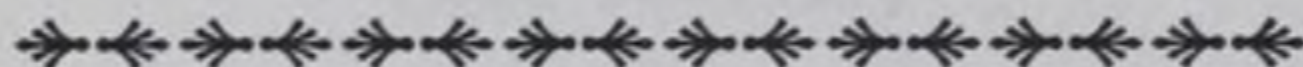
INT 323 Conservation Biology 3

OR

WLE 230 Introduction to Wildlife Conservation (2)

WLE 420 Forest Wildlife Management (WLE 230/420 must be taken together for this requirement)	(1)
AES 482 Pesticides and the Environment	3
Electives	13
Alternative courses can be selected with approval of advisor and undergraduate coordinator.	
AVS 200 Topics in Animal and Aquatic Science	(2)
BIO 205 Field Natural History of Maine/Lab	(4)
BIO 210 Introduction to Marine Biology/Lab	(4)
BIO 300 Field Marine Biology/Lab	(4)
CIE 331 Fundamentals of Environmental Engineering	(3)
FSN 270 World Food and Nutrition	(3)
FTY 349 Principles of Forest Management/Lab	(3)
FTY 430 Urban Forest Management/Lab	(3)
GEO 201 Introduction to Human Geography	(3)
INT 330 Waste Management	(3)
SIE 211 Surveying/Lab	(4)
SIE 225 Land Development Design/Lab	(3)
SIE 271 Geographic Information Systems/Lab	(3)
TOTAL HOURS	21
Free Electives	10-(12)

TOTAL CREDITS REQUIRED: 120



CURRICULUM IN AGRIBUSINESS MANAGEMENT

Agribusiness Management Concentration

Basic Lab Science Electives 8

Communications

ENG 101 College Composition	3
ENG 317 Business and Technical Writing	3
COM 103 Fundamentals of Public Communication	3
TOTAL HOURS	9

Humanities and Social Sciences

Electives should be chosen to complete University of Maine General Education Requirements. 18

Mathematics and Statistics

MAT 114 Calculus for Business and Economics	3
MAT 115 Applied Mathematics for Business and Economics	3
OR	
MAT 126 Calculus I	(4)
MAT 215 Introduction to Statistics for Business and Economics	3
COS 100 Introduction to Personal Computers	3
TOTAL HOURS	12(10)

Foundation Courses

BUA 201 Principles of Accounting I	3
BUA 202 Principles of Accounting II	3
ECO 120 Principles of Microeconomics	3
ECO 121 Principles of Macroeconomics	3
ECO 421 Intermediate Macroeconomics	3
ECO 420 Intermediate Microeconomics	3
TOTAL HOURS	18

Agribusiness and Economics

REP 254 Introduction to Production Economics
REP 286 Resource Policy Analysis
REP 371 Introduction to Natural Resource Economics and Policy
REP 458 Principles of Resource Business Management
REP 459 Resource Based Business Finance
REP 465 Food and Fiber Marketing
REP 468 Quantitative Analysis and Forecasting
REP 489 Seminar
TOTAL HOURS

Professional Electives

to be selected with Faculty Advisor
Free Electives 10(
NFA 117 Issues and Opportunities

TOTAL CREDITS REQUIRED: 120

AGRIBUSINESS ADMINISTRATION

This is an academically challenging program recommended only for the most capable students. It is administered jointly by the Department of Resource Economics and Policy and the College of Business, Public Policy and Health.

Students interested in the program apply for Admission to Resource Management and Environmental Policy in the College of Natural Sciences, Forestry and Agriculture.

Continuance in the concentration requires at least a 2.5 cumulative average.

Students who successfully complete the undergraduate portion of the program will receive a B.S. degree in Agribusiness and Resource Economics, and will be eligible to apply to the Graduate School to enter the Master's Program in Business Administration.

Completion of the undergraduate program **DOES NOT** guarantee admission to the M.B.A. program. Admission requirements for the M.B.A. include a good undergraduate grade point average, plus a minimum score of 475 on the Graduate Management Admission Test (GMAT). The following formula can be used as a guide to determine eligibility:

$$((\text{Undergraduate cumulative G.P.A.}) \times 200) + \text{GMAT score} = 1075 \text{ or more.}$$

Agribusiness Administration majors complete the same basic requirements as Agribusiness and Resource Economics majors but take five additional business courses in place of electives. Completion of these additional business courses allow students to complete the MBA program in one additional year. The five courses are:

- BUA 220 The Legal Environment of Business
- BUA 325 Principles of Management and Organization
- BUA 335 Business Information Systems
- BUA 350 Business Finance
- BUA 370 Marketing

SCHOOL OF SOCIAL WORK

Associate Professor Werrbach, Director
Professor DePoy
Associate Professor Coleman
Assistant Professors Butler, Haslett
Field Coordinator Kelly

THE SOCIAL WORK MAJOR

The social work major is designed to prepare students for beginning-level generalist professional social work practice in a broad range of social work settings. The program has been accredited by the Council on Social Work Education. It leads to the degree of Bachelor of Arts in Social Work upon receipt of which graduates are qualified to take the test for licensing as Licensed Social Workers in the State of Maine and in many other states.

Social workers help people cope with complex interpersonal and social problems, obtain the resources they need to live with dignity, and work for the social changes necessary to make society more responsive to people's needs. Based on a strong liberal arts foundation, social work majors acquire the knowledge, skills and values necessary for the professional practice of social work.

Graduates of the program are employed in public and voluntary social agencies in settings such as child and adult protective services, hospitals, mental health centers, schools, correctional institutions, nursing homes and many others. Graduates of this program are given credit toward work in many master's level social work programs, thus shortening the time needed to complete the requirements for the Master of Social Work degree.

The undergraduate curriculum in Social Work builds upon a solid liberal arts foundation with courses in human behavior and the social environment, social welfare policies and issues, social work research, social work practice and field instruction. During the junior and senior years, students complete internships in programs such as child protective services, medical social work, Big Brother-Big Sisters, psychiatric social work, community mental health, and community services. Sequencing of courses which are a prerequisite for enrollment into the Junior Year Field Experience are important. Prior to entering the junior year of the social work program, students must apply for permission to enroll in SWK 395, Beginning Field Experience and SWK 361, Social Work Methods I. Applications for Junior Field may be picked up in the office of the School of Social Work, Room 112, Annex C, on the University of Maine campus. Students must complete an Application for Junior Field prior to registering for the junior year.

The following courses are a prerequisite for enrolling into the Junior Year Field Experience:

- BI 100 Basic Biology
- BI 208 Anatomy and Physiology
- POL 100 American Government
- PSY 100 General Psychology
- SOC 101 Introduction to Sociology
- SWK 497 Cultural Diversity

- SOC 201 Social Inequality
- SWK 320 Values, History and Practice in Social Work and Social Welfare

and one of the following courses in ethics:

- PHI 102 Philosophy and Modern Life
- PHI 106 Social Issues in Recent Religious and Philosophical Thought
- PHI 230 Ethics
- PHI 240 History of Western Social and Political Philosophy
- PHI 344 Theories of Justice

Applicants should be able to use a basic wordprocessing computer program.

Academic credit for life experience and previous work experience cannot be given in lieu of the Senior field practicum or professional foundation courses.

REQUIREMENTS FOR THE SOCIAL WORK MAJOR

In addition to the courses which are required for enrollment into the Junior Field Experience the following courses must be completed in order to earn the BASW degree:

- SWK 350 Human Behavior and the Social Environment
 - SWK 361 Social Work Methods I
 - SWK 395 Beginning Field Experience in Social Work (2 semesters)
 - SWK 440 Social Welfare Policy and Issues
 - SWK 462 Social Work Methods II
 - SWK 463 Social Work Methods III
 - SWK 491 Methods of Social Work Research
 - SWK 492 Directed Research in Social Work (2 semesters)
 - SWK 495 Field Practicum in Social Work (2 semesters)
 - PSY 323 Psychology of Childhood
- OR
- CHF 201 Introduction to Child Development
 - ENG 212 Persuasive and Analytical Writing
- OR
- ENG 317 Business and Technical Writing

Correct course sequencing is essential for the social work major. Information about course sequencing and other requirements is described in detail in the *Baccalaureate Social Work Program Guide*. The *Program Guide* is available at the University Bookstore.

ETHICS

In addition to academic expectations, social work students are expected to demonstrate professional behavior consistent with the ethics of the social work profession as reflected in the Code of Ethics of the National Association of Social Workers. Behavior contrary to these standards will be cause for review of the student's admission to or continuation in the social work major.

BEHAVIOR

Since the role of the social worker involves helping people from a variety of backgrounds and with a range of problems, it is important that social work students have the emotional and psychological resources to render effective assistance to those in need. After admission to the major, students who demonstrate behaviors which suggest that their own difficulties are not sufficiently resolved to be able to help and support others at this time may be asked to seek professional help or to withdraw from the program.

ADMISSION TO FIELD PRACTICUM

Study for the social work major includes courses in theory, research, and practice. Study culminates during the senior year in a 400-hour supervised practicum in a social agency. In the practicum, students refine and integrate their academic knowledge and practice skills. Prior to the field practicum, students must complete the junior level field experience (SWK 395).

To be admitted to senior field practicum a student must have completed all prerequisites for admission to the program, and SWK 350, SWK 361, SWK 395 and SWK 440 with a grade of C or better; must have maintained a grade point average of 2.50 or higher; and must submit a practicum application.

GRADUATION REQUIREMENTS

A grade of "C" or better is mandatory in all required courses, and a grade point average of 2.50 or higher must be maintained. Students must conduct themselves in a professional manner consistent with the Code of Ethics of the National Association of Social Workers.

UNIVERSITY AFFILIATED PROGRAM

Social work majors with particular interest in Disability Studies may apply for participation in the University Affiliated Program (UAP), an interdisciplinary concentration. UAP students do their field practicum in agencies serving people with developmental disabilities and upon completion of the UAP requirements receive a Certificate of Completion in addition to the Bachelor of Arts degree in Social Work. (See Disability Studies, Interdisciplinary Course Concentrations in the index for more detail).

MASTER OF SOCIAL WORK PROGRAM

The School of Social Work offers graduate study leading to Master of Social Work (MSW) degree. The MSW requires 60 credit hours of study and may be completed in two to four years. No credit can be given for previous life or work experience. Students who hold a baccalaureate social work degree from a CSWE accredited program may apply for advanced standing. Students granted advanced standing may be able to complete the MSW program in one summer and one academic year, taking 39 credit hours. The program prepares students for advanced social work practice from a generalist perspective. Graduates find employment in a wide range of settings. More information may be obtained from the School of Social Work. Applications may be obtained from the Graduate School.

SOCIOLOGY

Associate Professor Gardner (Chairperson)
 Professors Barkan, Cohn, Markides, Marks
 Associate Professor Gallagher
 Teaching Fellow Baird

Completion of department requirements leads to a B.A. in sociology. A Sociology minor is also offered. Sociology courses are designed to further the student's understanding of society. The courses focus on such questions as: How do organizations work and how do they influence our lives? How do different groups affect the self? How is inequality based on gender, race, and social class created and maintained? How do deviant identities arise? What kind of family forms are emerging in the post-industrial world? What impact has the feminist movement having on social institutions? Why are rates of physical and mental illness unusually high in some areas of society? Most important, what options do people have to change their groups, organizations, and culture?

REQUIREMENTS FOR SOCIOLOGY MAJOR (39 CREDITS)

SOC 101, Introduction to Sociology, is a prerequisite for all other courses offered in the department. A Sociology major must then complete satisfactorily a minimum of 36 hours:

SOC 201 Social Inequality	3
SOC 301 Social Organization: The Micro Picture	3
SOC 302 Social Organization: The Macro Picture	3
SOC 320 Perspectives on Applying Sociology	3
SOC 390 Logic of Sociological Inquiry	3
SOC 460 Major Ideas in Sociology	3
SOC 499 Senior Seminar	3
Sociology Electives	15

9 of the 15 credits must be 300-level courses or above

In addition to these requirements, majors are also required to pass the following courses with a grade of "C" or better:

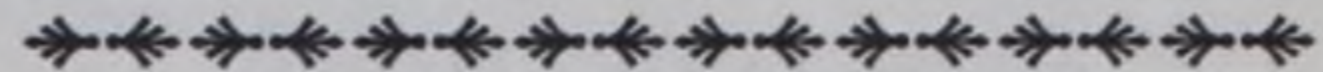
- a) HTY 106 as a prerequisite for SOC 302 and SOC 460
- b) one of the following statistics courses: ANT 462, MAT 215, MAT 232, PAA 315, PSY 341 or SOC 310; and
- c) ENG 212 or ENG 317

STUDENT INTERNSHIPS

Internships are available for Sociology majors. Those interested in an internship should stop by the department office for guidelines. Students are required to complete an "Intent to Declare an Internship" form. Forms are due March 24 for the Fall semester, and October 15 for Spring semester.

GRADUATION REQUIREMENTS

A grade of "C" or better is mandatory in each required sociology (SOC) course for the major. The GPA for all courses, required and elective, taken for the Sociology major must be at least 2.0.



SUGGESTED COURSE SEQUENCING FOR THE MAJOR

First Year

SOC 101 Introduction to Sociology

Sophomore Year

SOC 201 Social Inequality
Fall Semester

SOC 2xx Elective
 OR

SOC 3xx Elective
Spring Semester

SOC 2xx Elective
 OR

SOC 3xx Elective
 HTY 106 History of European Civilization II

Junior Year

Fall Semester

SOC 301 Social Organization: Micro
 SOC 320 Perspectives on Applying Sociology
 SOC 390 Logic of Sociological Inquiry
 SOC 460 Major Ideas in Sociology

ENG 212 Persuasive and Analytical Writing
 OR

ENG 317 Business and Technical Writing
Spring Semester

SOC 302 Social Organization: Macro

Statistics Course (see requirements for courses that fulfill statistics course)

SOC 3xx Elective
 OR

SOC 4xx Elective

Senior Year

SOC 499 Senior Seminar
Fall Semester

SOC 3xx Elective
 OR

SOC 4xx Elective
Spring Semester

SOC 3xx Elective
 OR

SOC 4xx Elective

REQUIREMENTS FOR THE MINOR IN SOCIOLOGY

For information regarding the Sociology minor see "minors" in the Index.

SPATIAL INFORMATION ENGINEERING

Associate Professor Onsrud (Chairperson)
Professor Leick
Associate Professors Beard-Tisdale, Egenhofer, Hintz
Assistant Professor Agouris
Faculty Associate Mundo

UNDERGRADUATE PROGRAM

The Department of Spatial Information Science and Engineering offers a four-year undergraduate program leading to a bachelor of science degree in Spatial Information Engineering. Human need for easily accessible information has never been greater and is growing rapidly. Computer and communication technologies, evolving at incredible rates, offer the potential to meet the needs for information any time, any place, and in any format. Spatial Information Science and Engineering is a contemporary discipline advancing technologies to acquire, integrate, model, analyze, manage, and supply information about land, resources, and the complexities of human interactions with the environment. This discipline (a) applies the measurement sciences of geodesy, surveying, photogrammetry, and remote sensing to acquire and manage data for a wide range of human endeavors, and (b) applies the concepts of math, physics, computer science, cognitive science, geography, and related sciences to design tools and techniques for analyzing, displaying, visualizing, and communicating spatial data. In addition to these concepts, the design of spatial information technologies and systems requires a comprehensive understanding of the social, legal, economic, and institutional issues affecting such systems, a commitment to human users and ethical uses of such systems, dedication to the ethic of broad access to information, and commitment to quality in information.

Spatial and geographic information systems are able to handle a broad spectrum of physical, economic, social, and cultural data. The computerized systems developed in this field are being used to: map the migrations and territories of endangered animal and plant species; inventory and manage the physical facilities of utilities and city governments; carry out epidemiological studies of diseases; track pollutants; navigate automobiles and emergency vehicles along optimal routes through busy cities; provide detailed planning for efficient and environmentally sound land development; profile and target consumer preferences; select optimal sites for businesses; guide airplanes as they progress along their routes; track patterns of ozone depletion, deforestation and soil erosion; and a host of similar analysis, monitoring, design, maintenance, inventorying, routing, resource allocation, mapping, and management tasks.

Spatial information engineering is suitable for students who have an interest in the management of information resources or the environment, computers and computer graphics, mathematics, high technology, and the outdoors. Graduates of the undergraduate program are ensured of a broad "liberal education" in engineering technologies, a solid course work base in geodesy, photogrammetry, geographic information systems, surveying, and boundary law topics, and a curriculum that amply prepares them for the national entry-level professional exams in surveying and engineering. Students are also encouraged to include a minor in computer science or business administration in their undergraduate programs.

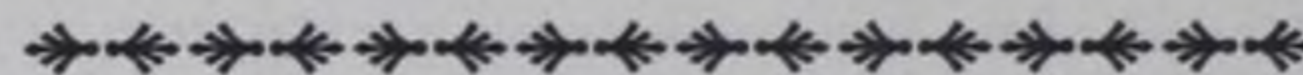
Graduates are both self-employed and employed throughout business and government in a broad range of spatial information management and system development positions. Many are involved in the traditional areas of managing land information systems, producing maps and digital databases through the application of photogrammetry, remote sensing, and global positioning system (GPS) techniques, accomplishing surveys for boundaries and

engineering projects, or managing, developing, and preserving land. Others are involved in advancing the technology itself; developing software and systems to enhance the ability of individuals, business, government, and industry to better utilize geographic information systems and satellite positioning systems in their daily tasks. Graduates start their careers with salaries comparable to other engineering disciplines and well above the national average starting salary for other college graduates.

The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) for Surveying Engineering and similarly named programs. Visit our web Site: <http://www.spatial.maine.edu/>

GRADUATE PROGRAMS IN SPATIAL INFORMATION SCIENCE AND ENGINEERING

The Department also offers Master of Science (thesis and non-thesis options) and Doctor of Philosophy (Ph.D.) degrees in Spatial Information Science and Engineering. The requirements for these graduate degrees may be found in the Graduate School catalog. Undergraduate students acquiring a 3.0 grade point average or better in their first four years are highly encouraged to seek at least a one-year, thirty credit course work master's degree. Although an undergraduate degree is a necessity for most entry-level engineering positions, the additional breadth and depth provided by the master's degree typically allows graduates to advance to professional-level positions much earlier in their careers.



SUGGESTED CURRICULUM B.S. in SPATIAL INFORMATION ENGINEERING

First Year

Fall Semester

CHY 121 Introduction to Chemistry
CHY 123 Introduction to Chemistry Laboratory
ECO 120 Principles of Microeconomics
GES 106 Geology for Engineers
OR
GES 101 Introduction to Geology
MAT 126 Calculus I
SIE 101 Introduction to Spatial Information Engineering

TOTAL HOURS

Spring Semester

ENG 101 College Composition
MAT 127 Calculus II
PHY 121 Physics for Engineers and Physical Scientists I
SIE 102 Principles of Information Systems
Humanities/Social Science Elective

TOTAL HOURS

Sophomore Year

Semester

COS 220 Introduction to Computer Science I	3
MAT 228 Calculus III	4
PHY 122 Physics for Engineers and Physical Scientists II	4
SIE 211 Surveying	4
TOTAL HOURS	15

ing Semester

MAT 258 Introduction to Differential Equations and Linear Algebra	4
MAT 332 Statistics for Engineers	3
SIE 225 Land Development Design	3
SIE 271 Geographic Information Systems	3
TOTAL HOURS	13

Junior Year

Semester

ENG 317 Business and Technical Writing	3
SIE 321 Legal Aspects of Land Surveying	3
SIE 331 Photogrammetry	3
SIE 401 Adjustment Computations	3
SIE 451 Engineering Databases and Information Systems	3
TOTAL HOURS	15

ing Semester

BUA 220 Legal Environment of Business	3
COS 221 Introduction to Computer Science II	3
MEE 150 Applied Mechanics: Statics	3
SIE 432 Advanced Photogrammetry	4
SIE 441 Geodetic Models	4
TOTAL HOURS	17

Senior Year

Fall Semester

ECE 215 Electric Circuit Fundamentals	3
SIE 412 Advanced Surveying	4
SIE 433 Remote Sensing	3
Humanities/Social Science Elective	3
Humanities/Social Science Elective	3
TOTAL HOURS	16

Spring Semester

ECE 224 Instrumentation	4
OR	
MEE 251 Strength of Materials	3
OR	
MEE 230 Thermodynamics I	3
Humanities/Social Science Elective	3
SIE 460 Spatial Information Systems Design	4
SIE 434 Digital Image Processing and Analysis	3
TOTAL HOURS	13

TOTAL CREDITS REQUIRED: 120

WILDLIFE ECOLOGY

Professor Gilbert (Chairperson)
Professors Hunter, Krohn, O'Connor
Associate Professors Harrison, Servello
Assistant Professor Rhymer

Faculty Associates Corr, Dressler, Elowe, Hutchinson, Jakubas, Kress, Longcore, Markowsky, Matula, McAuley, O'Connell, Wheelwright

Maine offers diverse opportunities to study wildlife in a variety of natural environments ranging from the coast with its sea birds, marine mammals, and eagles, to the more mountainous northern boreal forest occupied by moose, loons and marten. The goal of the program is to offer an education with emphasis on basic sciences and principles of wildlife ecology and resource management so students can develop responsible citizenship and a sound basis for individual employment as a professional wildlife biologist. Students are exposed to wildlife issues in a diversity of ecological systems on lands in national parks, wildlife refuges, state management areas, and privately-owned land.

All students receiving a bachelor of science degree in wildlife ecology meet the education requirements established by The Wildlife Society for professional certification. In addition, students also will meet the education requirements for many federal and state positions.

The faculty emphasize personal advising and career planning. Efforts are made throughout the program to provide professional experience with state, federal, and private organizations. Students also are encouraged to take advantage of several exchange programs with other universities during their junior year. Student organizations such as the University of Maine Student Chapter of The Wildlife Society provide opportunities to work together on career-related projects.

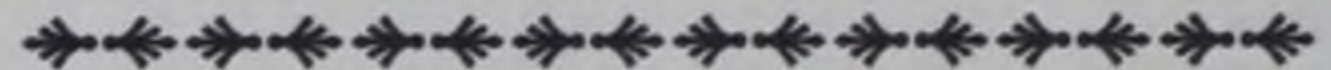
A very active Wildlife Ecology graduate program, offering both M.S. and Ph.D. degrees, enables undergraduates to interact with graduate students researching many different questions in wildlife ecology. Students have the opportunity through the Maine Cooperative Fish and Wildlife Research Unit to work with the U.S. Geological Survey's Biological Resources Division and the U.S. Fish and Wildlife Service and through the Maine Cooperative Park Studies Unit to work with the National Park Service.

The curriculum in Wildlife Ecology is designed to train the student to adapt to the changing requirements of the Wildlife profession. In addition to meeting the certification requirements of The Wildlife Society, the curriculum offers a solid base of arts, humanities and social sciences. Each student is required to concentrate 15 credits of electives in a specific disciplinary area, such as Science, Fisheries, Conservation Biology, Resource Management, Education and Interpretation, Animal Science, Mathematics and Computer Science, Forestry, or Remote Sensing and Spatial Analysis. Courses in these areas may be used to obtain an official minor. Students must have an approved summer professional job or experience to complete their degree.

REQUIREMENTS FOR ADMISSION

In addition to the general University and College requirements, admission to the B.S. in Wildlife Ecology from high school requires 4 units of English, 3 units of math (including math in the senior year) and at least 2 units of lab science. In addition, the student must be in the top 25% of their high school or have SAT verbal and math scores sum to at least 1100.

For transfer students, a 2.5 college GPA and completion of English composition and general zoology are required for admission.



CURRICULUM B.S. in WILDLIFE ECOLOGY

First Year

First Semester

BIO 100 Basic Biology
ENG 101 College Composition
MAT 122 Pre-Calculus
OR
MAT 151 Calculus for the Life Sciences
WLE 100 Introduction to Wildlife Resources
Electives*

TOTAL HOURS

Second Semester

BIO 204 Animal Biology
COS 100 Introduction to Personal Computers
OR
Other Computer Course
WLE 230 Introduction to Wildlife Conservation
Electives*

TOTAL HOURS

Sophomore Year

First Semester

CHY 121/123 Introductory Chemistry I
OR
BMB 207 Fundamentals of Chemistry
COM 103 Fundamentals of Public Communication
MAT 232 Principles of Statistical Inference
WLE 200 Ecology
WLE 201 Ecology Lab

TOTAL HOURS

Second Semester

BIO 201 Plant Biology
CHY 132/134 Applications in Chemistry/Lab
OR
BMB 208 Elementary Physiological Chemistry
INT 110 Modern Economic Problems
WLE 220 Introduction to Statistical Ecology

TOTAL HOURS

May Term

WLE 250 Wildlife Field Survey

* Electives must include *additional* general education requirements, 15 credit hours in an approved concentration, and 1-3 hours in a second course. Some of the above required courses also meet certain of the general education requirements.

Junior Year

First Semester

ENG 317 Business and Technical Writing	3
BIO 326 Introductory Entomology	4
OR	
BIO 353 Invertebrate Zoology	4
WLE 410 Management of Wildlife Populations	4
Electives*	4

TOTAL HOURS 15

Second Semester

BIO 329/331 Vertebrate Biology	4
BIO 464 Taxonomy of Vascular Plants	4
FTY 349 Principles of Forest Management*	3
WLE 450 Wildlife Habitat Relationships	4

TOTAL HOURS 15

Senior Year

First Semester

BIO 470 Fishery Biology	3
REP 371 Introduction to Natural Resource Economics and Policy	3
WLE 470 Wildlife Policy and Administration	3
Electives*	4

TOTAL HOURS 13

Second Semester

AES 140/141 Soil Science	4
Communications Elective	3
Electives*	6

TOTAL HOURS 15

TOTAL CREDITS REQUIRED: 125