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VCU



UNDERGRADUATE BULLETIN
2004 - 05

Academic and MCV Campuses

V i r g i n i a C o m m o n w e a l t h U n i v e r s i t y



VCU Undergraduate Bulletin 2004-05

Volume LXXVI

June 2004

Academic and MCV Campuses

Virginia Commonwealth University is an equal opportunity, affirmative action university providing access to education and employment without regard to age, race, color, national origin, gender, religion, sexual orientation, veteran's status, political affiliation or disability.

Virginia Commonwealth University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, master's, doctoral and first professional degrees.



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The bulletin for the academic year a student enters or re-enters a degree program identifies the curriculum degree requirements for that student. Students in continuous enrollment may fulfill the curriculum degree requirements of the bulletin for the year they entered VCU or in the alternative, choose to be subject to the curriculum degree requirements articulated in a subsequent bulletin. In either case, students must fulfill all curriculum degree requirements listed in the bulletin they choose.

The contents of this bulletin represent the most current information available at the time of publication. However, during the period of time covered by this bulletin, it is reasonable to expect changes to be made with respect to this information without prior notice. Thus, the provisions of this bulletin are not to be regarded as an irrevocable contract between the university (or any of its divisions) and the student.

All rules and regulations set forth in this bulletin will apply until further notice. The university reserves the right to make changes including, but not limited to, changes in courses of study, fees, rules, regulations, programs, faculty and staff, and classification of students, whenever university authorities, in their sole discretion, deem it appropriate, expedient or wise to do so.

Letter from the President



It is my pleasure to welcome you to Virginia Commonwealth University.

With more than \$185 million in annual research funding, VCU is ranked by the Carnegie Foundation as one of the nation's top research universities and is one of only three such universities in Virginia. More than 26,000 undergraduate, graduate, professional and doctoral students pursue 174 degree and certificate programs at the university's two thriving campuses, located in the heart of Richmond. Forty of the university's programs are unique in Virginia. Twenty graduate programs have been ranked by U.S. News & World Report as among the best of their kind in the nation, with two ranked number one in their discipline.

As part of a long-range strategic plan, VCU has been enhancing its stature as one of the nation's leading research universities. Strategic projects have included establishing a new School of Engineering, which has been an important factor in attracting the microelectronics industry to the state, and VCU Life Sciences, a comprehensive undergraduate and graduate program involving the academic and medical faculty.

VCU Life Sciences has spurred a major national public-education initiative through the public television series, "Secrets of the Sequence." In collaboration with Harvard University, the University of California-San Francisco, the University of Michigan, the University of Wisconsin-Madison and the Medical Research Council/Laboratory of Molecular Biology in Cambridge, England, VCU is advising the program's producers on the latest life sciences discoveries and their ethical implications.

The university also is developing the Virginia BioTechnology Research Park in collaboration with business, civic and government leaders. When it is fully developed, the research park will cover 34 acres in downtown Richmond and employ an estimated 3,000 professional and technical personnel.

The VCU Health System is one of the most comprehensive in the nation. Its physician-faculty, facilities and medical-care programs receive annual recognition from local, regional and national guides and reports on the best health care.

VCU is an extraordinary institution, and we are proud that you are part of the excitement here. Best wishes with your program of study.

Sincerely,

A handwritten signature in cursive script that reads "Eugene P. Trani". The signature is written in dark ink on a white background.

Eugene P. Trani
President

Virginia Commonwealth University

President's Office

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Dr. Eugene P. Trani

President

The university community

With more than \$185 million in annual research funding, Virginia Commonwealth University is ranked by the Carnegie Foundation as a Doctoral/Research University-Extensive, one of the nation's top research universities, and is one of only three such universities in Virginia. VCU's teaching, research, public service and patient care mission supports full-time and part-time students and faculty of diverse backgrounds. The university also contributes to the local, state, national and international communities through its scholarly activities, its diverse educational programs, and its public service and patient care initiatives.

Located in Richmond, the capital of Virginia, VCU is composed of two campuses. The 78-acre Academic Campus is situated in Richmond's historic Fan District. The 52-acre VCU Medical Center, which includes the VCU Health System, is located two miles east in the financial, commercial and governmental district of downtown Richmond. Of the university's 165 buildings, 40 were built before 1900. Fifty-two buildings are national historic landmarks or lie within a historic district.

VCU was established in 1968 by an act of the Virginia General Assembly, which merged the Medical College of Virginia with Richmond Professional Institute to form the new university.

MCV was founded in 1838 as the medical department of Hampden-Sydney College. It became an independent institution in 1854. In 1860, when Virginia appropriated \$30,000 for MCV's first hospital, it became a state-supported institution.

RPI was established in 1917 as the Richmond School of Social Work and Public Health. In 1925, it became the Richmond Division of The College of William and Mary. Its name was changed to RPI in 1939; in 1962, it separated from The College of William and Mary, becoming an independent state institution.

VCU is governed by a 16-member Board of Visitors appointed by the governor of Virginia. Board members, who come from the business, professional, civic and health care communities of Virginia, serve four-year terms. Members may be appointed for an additional four-year term at the governor's discretion.

VCU is organized into the divisions of Academic Affairs (which includes the Provost's Office and the Graduate School), Advancement, External Relations, Governmental Relations, Finance and Administration, Health Sciences, and Research. The university offers 174 baccalaureate, master's, professional, doctoral and certificate programs through VCU Life Sciences, the College of Humanities and Sciences (which includes the schools of Government and Public Affairs, Mass Communications, and World Studies) and the schools of Allied Health Professions, the Arts, Business, Dentistry, Education, Engineering, Medicine, Nursing, Pharmacy and Social Work. Forty of the university's programs are unique in Virginia. In addition, 20 graduate and professional programs have been ranked by U.S. News & World Report as among the best of their kind in the nation.

VCU also offers the Bachelor of Interdisciplinary Studies through the College of Humanities and Sciences and the Master of Interdisciplinary Studies through the Graduate School. Several additional programs provide off-campus students with the opportunity to earn degrees through telecommunications and instructional technology.

More than 26,000 students attend VCU; each year the university awards approximately 4,000 degrees. Thirty-one percent of

VCU's students represent minority groups, 59 percent are women and 34 percent are part-time students. The student body represents 49 states and 93 different countries. VCU students also come from Washington, D.C., Puerto Rico and the Virgin Islands.

With an annual budget of approximately \$1.5 billion, VCU and its affiliate organizations constitute a significant economic enterprise in the Richmond area. More than 15,300 faculty, staff and hourly employees, including 1,656 full-time faculty and 6,971 classified staff, make the university and the health system the city's single largest employer. Employees and students together spend approximately \$322 million a year in the local economy. The VCU Health System provides more than \$100 million worth of indigent health care services annually. Almost two-thirds of VCU's alumni live and work in Virginia.

VCU's economic impact includes a master-site plan that calls for capital expansion into under-used sections near the campuses. The plan has established architectural guidelines for future construction, which were developed in collaboration with the surrounding community. Current projects under construction represent more than \$145 million, and the value of authorized projects is nearly \$285 million. Since 1990, VCU has invested \$653 million in facilities, of which \$377 million has funded initiatives in the life sciences, engineering, biotechnology and patient care.

As part of a long-range strategic plan, VCU has enhanced its stature as one of the nation's leading research universities as well as continued its contribution to community and individual development, particularly through collaborative initiatives and partnerships.

One of the university's strategic collaborations is the School of Engineering, which has been an important factor in attracting the microelectronics industry to Virginia along with the Wright Center, also based at VCU. The university is developing the Virginia

BioTechnology Research Park in collaboration with business, civic and government leaders. When it is fully developed, the research park will cover 34 acres in downtown Richmond and employ an estimated 3,000 professional and technical personnel.

VCU also has launched VCU Life Sciences, a comprehensive undergraduate and graduate program involving the university's academic and medical faculty.

The VCU Health System supports a Level-I trauma center; the Massey Cancer Center, a National Cancer Institute-designated center; the Ambulatory Care Center; and a number of partnerships within the greater health care community. It is one of the most comprehensive teaching health centers in the country. It also has been ranked locally, regionally and nationally for providing the highest quality and most cost-efficient health care.

Alumni of the university

VCU has over 118,000 alumni, almost a third of whom are graduates of the MCV Campus. More than 40,000 reside in the Richmond metro area and 72,000 live in Virginia, contributing to its prosperity and quality of life.

Among its alumni, VCU can count a Nobel Prize winner, an Oscar winner and several Emmy winners, CEOs of national corporations, a university president, several state legislators, a best-selling author, a White House interior designer and numerous others. Just as important, VCU graduates comprise the majority of pharmacists and dentists in Virginia, a major portion of the state's nurses, physicians and health care managers, many of its teachers, artists and performers and its law enforcement personnel. VCU alumni are striving and excelling in every field of endeavor, using the knowledge and experience they gained at VCU and building pride in their university.

Alumni support their university through the VCU Alumni Association, the MCV Alumni Association of VCU and numerous constituent groups such as the African American Alumni Council, the Association of Real Estate Alumni and the Honors Alumni. Among the associations' many services are their two alumni magazines, Shafer Court Connections for graduates of the Academic Campus and Scarab for MCV Campus alumni. Their joint Web site hosts several thousand visitors monthly, bringing

together alumni and building bonds with VCU. A bimonthly electronic newsletter keeps alumni up to date on the latest university news and recognition.

The MCV Alumni House and Paul A. Gross Conference Center provide event space daily for faculty, students and university leaders as well as receive guests and host alumni gatherings. The Richard T. Robertson Alumni House at 924 W. Franklin St. offers elegant entertainment and meeting space for university and alumni needs while the VCU Alumni Association Board Room in the Student Commons remains a key meeting location for all campus groups.

Reunions, student recruitment and mentoring; externships, professional workshops and networking events; and recognition programs, parents' weekends and commencement breakfasts are some of the programs alumni plan and participate in to support their university. Both associations have extensively funded scholarships for students on both campuses. The VCU Alumni Association raised \$1 million to initiate a scholarship challenge campaign that created 114 freshman-merit scholarships, besides building an honors endowed-scholarship fund. The MCV Alumni Association supports several scholarship funds and contributed \$500,000 beginning an MCV Campus Initiative fund that will raise \$3 million in faculty support.

Among other services provided by the associations to their alumni are specialized college abroad travel; group major medical, life, auto and home insurances; low-cost affinity credit cards; nationwide Internet service for less than \$10 per month; and discounts on hotels, rental cars and numerous campus recreational and library services.

For further information about the VCU Alumni Association call (804) 828-2586; for the MCV Alumni Association call (804) 828-3900, and for both associations, e-mail vcu-alum@vcu.edu or browse their Web site: <http://www.vcu-mcvalumni.org>.

Mission of the university

VCU is a public, metropolitan, research university, supported by Virginia to serve the people of the state and the nation. The university provides a fertile and stimulating environment for learning, teaching, research, creative expression and public service. Essential to the life of the university is the faculty

actively engaged in scholarship and creative exploration activities that increase knowledge and understanding of the world and inspire and enrich teaching.

The university is dedicated to educating full-time and part-time students of all ages and backgrounds in an atmosphere of free inquiry and scholarship so they may realize their full potential as informed, productive citizens with a lifelong commitment to learning and service.

The university serves the local, state, national and international communities through its scholarly activities, its diverse educational programs, and its public service activities. As an institution of higher learning in a metropolitan center that also is the state capital, the university enjoys unique resources that enrich its programs. The university also contributes its intellectual and creative expertise in the development of innovative approaches to meet the changing needs of our society.

The goals of VCU in carrying out its mission are:

- to provide undergraduate education that includes a broad and rigorous foundation in the arts, sciences and humanities, and explores the ideas and values of humankind,
- to offer nationally and internationally recognized professional and graduate programs leading to doctoral, master's, and other terminal and advanced degrees in the professions, sciences, humanities and arts,
- to foster a scholarly climate that inspires creativity, a free and open exchange of ideas, critical thinking, intellectual curiosity, freedom of expression and intellectual integrity,
- to expand the boundaries of knowledge and understanding through research, scholarship and creative expression in the sciences, arts, humanities and professional disciplines,
- to value and promote racial and cultural diversity in its student body, faculty, administration and staff to enhance and enrich the university,
- to develop and sustain a faculty of the highest quality by providing an environment conducive to their achieving and maintaining national and international stature and by continuing to

attract both recognized scholars and other outstanding individuals with a high potential for scholarly achievement and excellence in teaching,

- to provide an optimal environment for educating and training health care professionals, for conducting research to improve health care and delivery, and for meeting the needs of patients and the community in a comprehensive health care setting,
- to use the urban environment as a laboratory for studying and developing new approaches to problems pertaining to the public and private sectors,
- to support (through its commitment to public exhibitions, performances, and other cultural activities) the imaginative power of the liberal, visual and performing arts to express the problems and aspirations of humanity and to enrich the lives of individuals,
- to develop innovative programs for continuing education that establish permanent intellectual connections between the university and its constituents, enhance professional competence, and promote dialogue on public issues,
- to offer diverse opportunities for individuals to benefit from higher education through a variety of avenues including flexible scheduling for part-time undergraduate and graduate students, open admission for nondegree-seeking students with appropriate preparation, advanced degree programs for working professionals, selected programs in diverse locales, admission of graduates with appropriate associate degrees in arts or sciences, and support programs for specially admitted students, and
- to promote interdisciplinary studies within the university to bring new perspectives to bear on complex problems, and mobilize creative energies and expertise in meeting the needs of society and individuals through its unique role as Virginia's major urban university.

MCV Campus mission

The MCV Campus is an integral part of VCU. The five academic schools and teaching hospital of the MCV Campus serve the needs of the citizens of Virginia for:

- transmission of knowledge related to health services,
- continuity in the supply of health care professionals,
- accessibility to comprehensive and quality health care services, and
- development and dissemination of new knowledge for the advancement of the health sciences.

The MCV Campus is committed to educational programs directed toward meeting the state's health needs. Programs are dedicated to maintaining and updating the competency of health professionals as well as preparing graduates to enter the health professions. Educational programs are supported by several academic disciplines, the teaching hospital, carefully selected off-campus health facilities, and an institutional commitment to effective teaching.

The MCV Campus also is committed to a comprehensive program of patient care: to demonstrate excellence in practice as a model for students, to provide a base of study designed to improve patient care, to meet the needs of patients in its hospital's service area, and to offer highly specialized services in clinical areas of demonstrated expertise.

The MCV Campus' research programs are designed to develop new knowledge in areas ranging from the molecular level through clinical procedures to health care delivery and outcomes. Their goal is to serve as a model for students in the spirit of inquiry and the application of the scientific process to patient care, and to focus interdisciplinary effort on problems amenable to the scientific approach.

Virginia Commonwealth University Health System Authority

In 1996, the Virginia General Assembly enacted legislation transferring operation of the Medical College of Virginia Hospitals from VCU to the Medical College of Virginia Hospitals Authority. The transfer became effective July 1, 1997.

As established by the General Assembly, the authority is an independent public authority with the power and purpose to deliver medical care and related services to residents of the commonwealth of Virginia and other persons; to provide educational

opportunities in the medical field and related disciplines; to conduct and facilitate research in the medical field and related disciplines; and to enhance the delivery of health care and related services to the commonwealth's indigent population. Specifically with respect to VCU, the General Assembly charged the authority with the missions of operating MCV Hospitals as teaching hospitals for the benefit of VCU's health science schools and providing a site for medical and biomedical research in close affiliation with those schools.

Effective July 1, 2000, the name of the authority was changed to the Virginia Commonwealth University Health System Authority. The clinical missions of MCV Hospitals, MCV Physicians and the VCU School of Medicine are integrated under the VCU Health System, with VCU's vice president for health sciences serving as chief executive officer of the VCU Health System. In addition, the president of VCU serves as president of the VCU Health System and chairperson of its Board of Directors.

Academic organization

VCU is organized into one college, and several schools and departments offering undergraduate, professional and graduate programs. The dean's office of each school provides the general coordination of the academic departments and programs within the school. Listed are the schools with their respective departments and programs.

VCU Life Sciences

Center for Environmental Studies
environmental studies
Center for the Study of Biological Complexity
bioinformatics
Integrative life sciences

College of Humanities and Sciences

L. Douglas Wilder School of Government and Public Affairs
criminal justice
economics
political science
public administration
urban studies and geography
School of Mass Communications
Adcenter
School of World Studies
anthropology
foreign languages – French, German, Spanish
international studies
religious studies
Department of Biology
Department of Chemistry

Department of English
 Department of History
 Department of Mathematics and Applied Mathematics
 Department of Military Science and Leadership
 Department of Philosophy
 Department of Physics
 Department of Psychology
 Interdisciplinary Program in Science
 Department of Sociology
 Department of Statistical Sciences and Operations Research
 African American Studies Program
 Bachelor of Interdisciplinary Studies Program
 individualized
 women's studies
 Forensic Science Program
 Preparation for Professional Studies in the Health Sciences
 pre-clinical laboratory sciences
 pre-clinical radiation sciences
 pre-dental hygiene
 pre-dentistry
 pre-medicine
 pre-nursing
 pre-occupational therapy
 pre-optometry
 pre-pharmacy
 pre-physical therapy
 pre-veterinary medicine
 Preparation for the Study of Law
 pre-law

School of Allied Health Professions

Department of Clinical Laboratory Sciences
 Department of Gerontology
 Department of Health Administration
 Department of Nurse Anesthesia
 Department of Occupational Therapy
 Department of Physical Therapy
 Department of Radiation Sciences
 Department of Rehabilitation Counseling
 Program in Patient Counseling

School of the Arts

Department of Art Education
 Department of Art History
 art historical
 architectural history
 Department of Communication Arts and Design
 Communication Arts Program
 illustration
 scientific and preparatory medical illustration
 three-dimensional modeling
 Communication Design Program
 art direction
 graphic design
 interactive multimedia design
 typographic design
 three-dimensional design
 Kinetic Imaging Program
 Department of Crafts
 ceramics
 fiber/fabric design
 glassworking
 jewelry/metalsmithing
 wood/furniture design
 Department of Dance and Choreography

Department of Fashion Design and Merchandising
 fashion design
 fashion merchandising
 Department of Interior Design
 Department of Music
 performance
 composition
 music education
 Department of Painting and Printmaking
 painting
 printmaking
 Department of Photography and Film
 filmmaking
 still photography
 Department of Sculpture
 Department of Theatre
 performance
 design/technical
 theatre education
 Art Foundation Program

School of Business

Department of Accounting
 Department of Economics
 Department of Finance, Insurance and Real Estate
 finance
 financial technology
 insurance/risk management
 real estate and land development
 Department of Information Systems
 Department of Management
 business administration and management
 human resource management/industrial relations
 Department of Marketing and Business Law
 Advanced Program
 Business Foundation Program

School of Dentistry

Department of Endodontics
 Department of General Practice
 Department of Oral Pathology
 Department of Oral and Maxillofacial Surgery
 Department of Orthodontics
 Department of Pediatric Dentistry
 Department of Periodontics
 Department of Prosthodontics
 Division of Dental Hygiene
 Philips Institute of Oral and Craniofacial Molecular Biology

School of Education

Department of Counselor Education
 Department of Educational Leadership
 Department of Exercise Science
 Department of Foundations of Education
 Department of Recreation, Parks and Sport Management
 Department of Special Education and Disability Policy
 Department of Teacher Education in Health and Physical Education
 Department of Teaching and Learning

School of Engineering

Biomedical Engineering Department
 Chemical Engineering Department
 Computer Science Department
 Electrical and Computer Engineering Department
 Mechanical Engineering Department

Graduate School

Biotechnology
 Individualized Programs of Study (including cooperative ventures with other colleges and universities)
 Interdisciplinary Off-campus Arts
 Interdisciplinary Studies

School of Medicine

Department of Anatomy and Neurobiology
 Department of Anesthesiology
 Department of Biochemistry
 Department of Biostatistics
 Department of Dermatology
 Department of Emergency Medicine
 Department of Family Medicine
 Department of Human Genetics
 Department of Internal Medicine
 Department of Legal Medicine
 Department of Microbiology and Immunology
 Department of Neurology
 Department of Neurosurgery
 Department of Obstetrics and Gynecology
 Department of Ophthalmology
 Department of Orthopedic Surgery
 Department of Otolaryngology
 Department of Pathology
 Department of Pediatrics
 Department of Pharmacology and Toxicology
 Department of Physical Medicine and Rehabilitation
 Department of Physiology
 Department of Preventive Medicine and Community Health
 Department of Psychiatry
 Department of Radiation Oncology
 Department of Radiology
 Department of Surgery

School of Nursing

Department of Adult Health Nursing
 Department of Maternal-Child Nursing
 Department of Nursing Systems, Community and Psychiatric Mental Health

School of Pharmacy

Department of Medicinal Chemistry
 Department of Pharmaceutics
 Department of Pharmacy

School of Social Work

Baccalaureate Social Work Program
 Master of Social Work Program
 Ph.D. in Social Policy and Social Work Program

Center for Public Policy

Public Policy and Administration

Undergraduate degree programs

Bachelor of Arts degrees

African American studies
 art history
 English
 fashion merchandising
 foreign languages/French
 foreign languages/German
 foreign languages/Spanish

history
 home fashions merchandising
 international studies
 music
 philosophy
 ethics and public policy
 political science
 accelerated B.A./M.P.A. program
 religious studies

Bachelor of Fine Arts degrees

art education
 communication arts and design
 crafts
 dance and choreography
 fashion
 interior design
 painting and printmaking
 photography and film
 sculpture
 theatre
 theatre education

Bachelor of Interdisciplinary Studies degrees

individualized
 women's studies

Bachelor of Music degrees

performance
 composition
 music education

Bachelor of Science degrees

accounting
 anthropology
 athletic training
 bioinformatics
 biology
 business administration and management
 business administration
 entrepreneurship and small business management
 international management
 chemistry
 clinical laboratory sciences
 clinical radiation sciences
 nuclear medicine technology
 radiation therapy
 radiography
 computer science
 criminal justice
 dental hygiene
 economics
 engineering
 biomedical
 chemical
 computer
 electrical
 mechanical
 environmental studies
 finance
 finance
 financial planning
 insurance/risk management
 financial technology
 forensic science
 health, physical education and exercise science
 human resource management/industrial relations

interdisciplinary degree program in science
 information systems
 application development
 business analysis
 network management
 marketing and business law
 mass communications
 mathematical sciences/applied mathematics
 mathematical sciences/mathematics
 mathematical sciences/operations research
 mathematical sciences/secondary mathematics teacher
 preparation
 mathematical sciences/statistics
 nursing
 physical education
 physics
 psychology
 real estate and urban land development
 recreation, parks and sport management
 science
 biology
 chemistry
 general science
 mathematical sciences
 physics
 sociology
 urban studies and geography

Bachelor of Social Work degree

For additional information, see the academic programs section of this bulletin.

Certificate programs

Pre-baccalaureate certificate programs

critical care nursing
 international management studies

Post-baccalaureate undergraduate certificate programs

accounting
 computer science
 environmental studies
 human resource management
 information systems
 marketing
 mathematical sciences
 real estate and land development
 statistics

Post-baccalaureate graduate certificate programs

aging studies
 applied social research
 criminal justice
 human resource development
 library media specialist
 nonprofit management
 patient counseling
 planning information systems
 pre-medical basic health sciences
 anatomy
 biochemistry and molecular biophysics
 human genetics
 microbiology and immunology
 pharmacology and toxicology

physiology
 public management
 real estate and land development
 teaching
 urban revitalization

Post-master's certificate programs

aging studies
 educational leadership
 nursing
 acute care nurse practitioner
 adult nurse practitioner
 nursing administration
 nursing in faith communities
 pediatric nurse practitioner
 psychiatric/mental health clinical nurse specialist
 women's health nurse practitioner
 principalship
 professional counseling
 reading specialist

For additional information, see the academic programs section of this bulletin and the Graduate and Professional Programs Bulletin.

Minors

For additional information, see the section on minors in the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

African American studies
 American studies
 anthropology
 area studies
 African
 Asian
 Latin American
 Middle Eastern
 Russian and Eastern European
 Western European
 art history
 biology
 business, general
 Catholic studies
 chemistry
 computer science
 crafts
 criminal justice
 dance/choreography
 e-business
 economics
 engineering
 chemical
 electrical
 mechanical
 English
 environmental studies
 fashion merchandising
 foundations of special education
 French
 geography
 German

global studies
 the arts in global perspective
 health in a global perspective
 international institutions and globalization
 international relations
 international social justice studies
 social relations in international perspective
 history
 human resource management
 international management studies
 Italian
 Judaic studies
 Latin and Roman studies
 marketing
 mathematical sciences
 media studies
 music
 Native American studies
 painting and printmaking
 philosophy
 philosophy of law
 physics
 political science
 psychology
 public management
 recreation, parks and sport management
 religious studies
 sculpture
 social welfare
 sociology
 Spanish
 statistics
 urban studies
 women's studies
 writing (see English)

For additional information, see the academic programs section of this bulletin.

Introduction to the university

Leila E. Brinegar

Director, First Year Student Services (2002)
 B.A. 1994 Longwood College
 M.Ed. 2001 The College of William and Mary

VCU1 101 Introduction to the University is a one-credit course that all entering new freshmen or transfer students are encouraged to take. This 10-week course is taught by faculty and student affairs' administrators in small-class settings. Students assess their expectations and evaluate their academic strengths and career goals. Through lectures, guest speakers and individual projects, students discover the VCU resources and services designed to help them solve problems and achieve a personally rewarding and successful academic program. Having completed this course, students will better understand their fit as new members of the VCU community.

VCU1 102 Turning Point: Discover a New Direction, a one-credit course taught in the spring semester, lasting 10 weeks, is designed for freshman students who find themselves on academic warning and/or probation. A small classroom environment will help students identify their academic difficulties, analyze study skills and develop a plan to improve their academic lives. Students will learn about VCU's resources designed to help them succeed academically. Finally, through participating in class discussions, keeping a reflective journal and producing individual projects, students will develop a plan for improving their academic performance at VCU.

These courses are coordinated by the director of First Year Student Services, Virginia Commonwealth University, P.O. Box 842505, Richmond, VA 23284-2505, (804) 828-3700. For further information on First Year Student Services, see the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in academic affairs (VCU1)

VCU1 101 Introduction to the University

Semester course; 1 lecture hour. 1 credit. A course designed to orient new students to the rich traditions and purposes of a university education. Students will assess their expectations and evaluate their academic strengths and career goals. Through lectures, guest speakers and individual projects, students will discover the VCU resources and services designed to help them solve problems and to achieve a personally rewarding and successful academic program.

VCU1 102 Turning Point: Discover a New Direction

Semester course; 1 lecture hour. 1 credit. This 10-week course is designed for freshman and sophomore students who find themselves on academic warning at the end of the fall semester. Through a small classroom environment, students identify their academic difficulties, analyze study skills and develop a plan to improve their academic lives. Students will learn about VCU's resources that are designed to help them succeed academically. Finally, through participating in class discussions, keeping a reflective journal and producing individual projects, students will develop a plan for improving their academic performance at VCU.

Undergraduate General Education Program

VCU's Undergraduate General Education Program represents those learning objectives deemed important for all undergraduate students regardless of their major area of study. The goal of the program is to ensure that students acquire the intellectual skills and breadth of knowledge that will

not only contribute to the success of their undergraduate studies but will prepare them for the challenges and opportunities of the 21st century. The university has identified a series of broad educational commitments as well as seven specific curricular elements that constitute the Undergraduate General Education Program.

The following statements are commitments of the university:

1. Students can expect to learn the elements of clear thinking and to be nurtured in their development as careful, critical and creative thinkers.
2. Students can expect to learn how to access, retrieve, evaluate and synthesize information in various formats (bibliographic, graphic, numeric, spatial, textual, etc.) through up-to-date means relative to their studies at every level.

The VCU Mission states that the university is dedicated to educating students in an atmosphere of free inquiry and scholarship, so that they may realize their full potential as informed, productive citizens with a lifelong commitment to learning and service. The best mechanism for fostering a commitment to lifelong learning among students is to promote self-examination and to motivate them to seek the life of the mind by immersing them in exciting learning in a variety of venues among dedicated scholars in the arts, the humanities, the sciences and their myriad applications.

3. A third commitment of the university is to foster lifelong learning. Students can expect guidance in developing the habit of self-examination and help in becoming self-actuated lifelong learners.
4. Issues-oriented or thematic courses offer an integrated approach to certain fundamental human problems while requiring students to grapple with important issues of our day. To ensure that students have access to issues-oriented courses, the university makes the following commitment: students can expect to be able to achieve part of their general education through interdisciplinary courses addressing major issues of our day. The courses will integrate, rather than isolate, various disciplinary approaches to learning and understanding.

VCU has identified seven curricular elements for general education:

1. Communicating

Students should demonstrate effective oral and written communication skills. Beyond the general basic knowledge of composition and rhetoric, the student should learn the standards of communication within the student's own discipline.

2. Ethics

Students should demonstrate an understanding of the main concepts and theories of ethics and the role they play in our public and private lives at both the professional and personal levels. Students should be able to examine their fundamental moral beliefs, to form rational arguments and judgments relative to ethics, and to enable them to act on their values to make ethical choices.

3. Quantity and form

Students should be able to quantify or represent information symbolically. Students should be able to use such codified information with respect to questions of size, proportion or order, and to analyze it or manipulate it in a manner consistent with the standards of the student's own discipline.

4. Science and technology

Students should demonstrate some understanding of and experience with the processes and concepts of modern experimental science and the impact of science and technology on society.

5. Interdependence

Students should be able to demonstrate an awareness of the cultural, economic, informational and social interdependencies that exist among nations and cultures today.

6. Visual and performing arts

Students should demonstrate an enhanced understanding of and experience in the various visual and performing arts that represent and express the complexities of the human condition.

7. Humanities and social sciences

Students should demonstrate an appreciation of the varieties and complexities of human cultures and values as expressed through literary, religious, historical and philosophical works. They also should demonstrate an understanding of individual and collective behavior as structured through political, economic, social and cultural institutions.

Beginning with the class entering in fall 1997, students are subject to these general education requirements.

Admission to the University

Undergraduate Admissions
821 W. Franklin St. • P.O. Box 842526
Richmond, VA 23284-2526
(800) 841-3638, (804) 828-1222
Fax (804) 828-1899
<http://www.vcu.edu/ugrad>
E-mail: ugrad@vcu.edu

MCV Campus Undergraduate Admissions
1101 E. Marshall St. • P.O. Box 980632
Richmond, VA 23298-0632
(804) 827-0152 • Fax (804) 828-2573
<http://www.vcu.edu/admissions/mcv/mcvindex.htm>

VCU Welcome Center
West Broad Street Parking Deck
1111 W. Broad St.
Richmond, VA 23284-2526
(804) 827-2000
<http://www.vcu.edu/ugrad/welcome>

Office of Records and Registration
827 W. Franklin St. • P.O. Box 842520
Richmond, VA 23284-2520
(804) 828-1341 • (804) 828-1349
Fax (804) 828-2573
<http://www.vcu.edu/enroll/rar>
E-mail: rar@vcu.edu

General policy governing admissions and enrollment

As a comprehensive, metropolitan, public institution, Virginia Commonwealth University seeks to provide excellent higher education for those who will profit from an intellectually challenging experience. The university encourages applications from people who are sincere in their desire to study in an environment where excellence in teaching, research, scholarly activities and community services is stressed. In addition, VCU encourages applications from returning adult students whose education may have been interrupted.

Recognizing the value of a diverse student body, the university invites applications from all qualified persons without regard to age,

race, color, national origin, gender, religion, sexual orientation, veteran's status, political affiliation or disability. Although the university has a primary responsibility to educate Virginia residents, the value and contribution of a diverse student body is recognized and the enrollment of students from other states and countries is encouraged. Entrance requirements are in full compliance with all applicable federal and state statutes, rules and regulations.

All people admitted to and enrolled in the university are classified as either degree-seeking or special (nondegree-seeking) students. Degree-seeking students are presumed to be working toward a degree in approved educational programs, while special students are permitted to enroll in classes on a semester basis. Recognizing a commitment to educate students who desire to take courses primarily for self improvement or to continue lifelong education, the university also encourages the enrollment of special (nondegree-seeking) students. The university enrolls as many qualified degree-seeking and nondegree-seeking students as resources permit. When resources are limited, spaces go to those who present credentials showing the greatest potential for academic success in degree programs.

The Board of Visitors establishes general admission policies on the recommendation of the university administration. Admission criteria and policies are recommended by the Undergraduate and Graduate Admissions offices as well as the deans of the schools and college of the university on the advice of their faculties. Entrance requirements for schools and the college within the university may differ. Various departments may have unique admission requirements, such as examinations, auditions, portfolios, interviews, licensure or language proficiency, in order to evaluate a student's potential for success in selected programs and courses. The university selects applicants who present the strongest qualifications in scholastic achievement and potential, standardized examinations,

and through the review of other evidence of potential. Each applicant is reviewed on an individual basis.

Graduate and professional programs admissions

For information about requirements and procedures for admission to graduate study at VCU, see the Graduate and Professional Programs Bulletin or contact the Graduate School at 1001 Grove Ave., P.O. Box 843051, Richmond, VA 23284-3051, (804) 828-6916.

For information about admission to MCV Campus professional programs, refer to sections on the schools of Dentistry, Medicine and Pharmacy.

The Graduate and Professional Programs Bulletin is available online at <http://www.vcu.edu/bulletins>.

Categories of student enrollment

VCU provides a variety of ways in which a student may pursue a course of study.

Degree-seeking student

This student has fulfilled the admission requirements of the university and a particular school and is enrolled in a bachelor's (four-year) degree program or a health sciences preparatory program. A degree-seeking student may engage in studies as either a full-time student (12 credits or more per semester) or as a part-time student and may enroll for day and/or evening classes.

Furthermore, a degree-seeking student may pursue a program of study in one of the following ways:

1. **As a declared departmental major in a school or college.** The student who declares a specific major when entering VCU begins a course of study leading to a degree in the declared major. (The student may change the major at a later date.)

2. **As an undeclared student.** Students who have not selected a specific major, may select the “undeclared” category within the College of Humanities and Sciences. Students are advised along general academic lines so they may enroll in courses which will assist them in more clearly defining their academic objectives.

The advising program is flexible enough to suit the interest of any student, yet it is basic to a number of fields of study in different schools. During the first year of study, students are encouraged to investigate various fields until they find a major that suits their interests, needs and goals.

Students must define these goals and declare a major area of study no later than the semester in which they complete 60 credits, generally after two years of study.

Nondegree-seeking special student

A student who meets the requirements for undergraduate eligibility may enroll for credit as a special student in day and/or evening classes at VCU without seeking admission to a degree program.

Undergraduate special students are advised about course selections and aided in educational and vocational planning by the College of Humanities and Sciences’ Office of Undergraduate Advising. Such students are ineligible for financial aid.

Permission to enroll as a special student does not ensure later admission as a degree-seeking student. Continuance in this status is dependent on academic performance, and special students are subject to the continuation regulations stated in the “Academic Regulations and General Degree Requirements” chapter of this bulletin.

The undergraduate special student may pursue course work in one of the following categories:

1. **As a nondegree holder.** This student has not previously earned a baccalaureate degree. The student may take a maximum of 11 credits per semester (part time).
2. **As a degree holder.** This student has previously earned a baccalaureate degree at VCU or another accredited institution and plans to pursue addi-

tional undergraduate course work. The student may take a maximum of 19 credits per semester.

3. **As a transient student.** This student is presently seeking a baccalaureate degree at another institution of higher education, is in good standing at that institution and plans to pursue a course of study at VCU for no more than two semesters with the intent of transferring the work back to the home institution to complete the degree. The student may take a maximum of 19 credits per semester and must present a letter from the home institution approving the student’s status as a transient student at VCU. (Refer to the “Special Student Guidelines” in this chapter of this bulletin).

Credits earned as a special student are recorded on the student’s permanent academic record. There is no limit placed on the number of credits that can be earned in this classification. Special students who wish eventually to earn a baccalaureate degree at VCU are encouraged to seek admission to a degree program before accumulating 22 semester credits.

Special student advising

Special nondegree holders or degree holders who wish to take undergraduate classes are advised through the College of Humanities and Sciences’ Office of Undergraduate Advising. Special nondegree-seeking students must meet eligibility requirements (see Special Student Guidelines on following page) and are limited to a maximum of 11 credits per semester and are not eligible for financial aid. Special degree holders (those students who already hold a baccalaureate degree) may take more than 11 credits, but also are not eligible for financial aid. Academic advisers assist special students by providing educational planning and information about university resources and regulations. Special degree holders who wish to register for graduate courses need to contact the specific academic department for advising. The advising office is located at 900 Park Ave., Room 207, P.O. Box 842002, Richmond, VA 23284-2002. Phone: (804) 828-2333. Fax: (804) 828-6048.

Admission guidelines

The credentials of undergraduate applicants for admission to degree status are reviewed on an individual basis. Because the number of applicants who meet the requirements for admission may exceed the number that can be admitted, the university selects those candidates who present the strongest qualifications in scholastic achievement and potential as reflected on transcripts and test scores. Freshman applicants interested in the university’s College Success Program should read the information about student advising in the “College of Humanities and Sciences” chapter of this bulletin. Applicants interested in enrolling as special students should read the “Special Student Guidelines” section that also appears in this chapter.

Freshman undergraduate admission guidelines

An applicant for degree status must be a graduate of an accredited secondary school (or its equivalent) or hold a GED certificate with adequate scores, defined as a composite score of at least 550 on the GED battery. A high school student should submit an application for admission after completion of the junior year, unless applying for the Early Admission or Advanced Scholar programs, in which case the application should be submitted after the sophomore year.

All freshman applicants under the age of 22 are required to submit scores from the SAT I or ACT.

For admission to the College of Humanities and Sciences (including the schools of Government and Public Affairs, Mass Communications and World Studies), schools of Business, Education, Engineering or Social Work, at least 20 high school units are required, with the following minimum distribution of subjects: four units in English; three units in mathematics, one of which must be Algebra I and one of which must be geometry or Algebra II; two units in science, one of which must be a laboratory science; and three units of history or social sciences or government. Students are encouraged to present at least two units in a modern or ancient language. Many programs at this university require at least one year of collegiate study in a modern or ancient language for graduation.

In addition, preference is given to candidates who submit the Advanced Studies

Diploma or its equivalent. This diploma requires four units in English; four in social sciences, including world history, U.S. history and U.S. government; four units in mathematics (Algebra I, geometry and Algebra II); four units in science drawn from earth science, biology, chemistry, physics or other advanced science courses; and either three years of one foreign language or two years of two foreign languages; two units in health and physical education; and one unit of fine arts or practical arts.

Applicants seeking admission to programs in the College of Humanities and Sciences (including the preprofessional health-related programs), the schools of Business, Education (especially those interested in the five-year bachelor's/master's program), Engineering and Social Work are encouraged to take additional laboratory science courses in high school. In addition to the basic requirements in mathematics, applicants to programs in engineering, science, computer science and mathematics are encouraged to take additional advanced courses in mathematics.

Freshman applicants planning to pursue a major in the health sciences (radiation sciences, dental hygiene, clinical laboratory sciences, nursing, occupational therapy and pharmacy) are advised to apply to the preprofessional programs of their choice in the College of Humanities and Sciences.

The University Honors Program offers qualified students interested in health science the opportunity for early acceptance into many of the MCV Campus programs.

Freshman applicants who are not admitted with degree status may be eligible to enroll at VCU as special students provided one year has elapsed since their actual or intended high school graduation date.

Special student guidelines

The first time a student registers as a special student, he or she must meet the following conditions of eligibility as appropriate to his or her status:

1. be a high school graduate or GED holder for one year before the intended semester of entry, or
2. be an applicant who meets established admission requirements, or

3. be a transfer student who is eligible to return to the former institution or has been out of school for at least one year for a first suspension or five years for the second suspension incurred at any institution, or
4. be a former VCU student who is eligible to return. If the student has been suspended from VCU for academic reasons, eligibility for future enrollment must be re-established in accordance with procedures outlined in the "Readmission Guidelines" section and the suspension policies outlined in the "Academic Regulations and General Degree Requirements" chapter of this bulletin, or
5. be a bachelor's degree holder taking undergraduate courses, or
6. be an eligible transient student. A transient student must present, before or at the time of registration, a letter from the home institution, which states that the student is in good standing, has permission to study at VCU for transfer back to the home institution, and which outlines the courses to be studied at VCU, or
7. be a non-U.S. citizen who has been cleared through the Office of International Education.

Students are responsible for knowing the terms of eligibility and for stating that they are eligible for special student status.

The first time a student registers as a special student, proof of eligibility is required. Students may sign an eligibility card stating their eligibility, which is then verified by the Office of Records and Registration. A student also may establish eligibility by providing verification of high school graduation, GED certification or verification that he or she is eligible to return to the previous institution of study.

If the student's eligibility cannot be verified or if the student is found ineligible, the grade on the course taken is changed to no credit (NC). An administrative hold is placed on future registrations until eligibility is established.

Special students who hold bachelor's degrees are classified as DHG (degree-holder

graduate) if they enroll in one or more graduate courses. DHG students are charged by the level of the course unless they enroll for nine or more credits, at which point they are charged at the full-time graduate rate. Special students who hold undergraduate degrees are classified as DHU (degree-holder undergraduate) if they enroll in all undergraduate courses. DHU students who enroll in 12 or more credits are charged at the full-time undergraduate rate. If they make changes to their course enrollment by the end of the add/drop week, their classification and charges change in accordance with these guidelines.

Degree-holding special students enrolling in graduate courses should refer to the Graduate and Professional Programs Bulletin.

Special students who plan to earn a degree eventually must apply for degree admission and, depending on their credentials, may be required to complete 15 credits with an earned GPA of 2.0, which includes a minimum of two courses (totaling six credits) required by their degree curriculum.

Students studying on foreign visas, because of U.S. immigration and naturalization regulations, are expected to enroll as full-time students and usually are not permitted to enroll as special students.

The Office of Undergraduate Admissions' staff is available to answer general questions, to distribute publications and application forms, and to provide specific information pertaining to the admission process.

Application forms and other admissions information may be obtained by writing or telephoning the Office of Undergraduate Admissions, Virginia Commonwealth University, P.O. Box 842526, Richmond, VA 23284-2526. Telephone toll free (800) 841-3638 or locally (804) 828-1222, fax (804) 828-1899, e-mail ugrad@vcu.edu, or visit the office at 821 W. Franklin St. or online at <http://www.vcu.edu/ugrad>.

Evening studies

VCU day and evening programs are academically integrated, and credit earned in the evening program is identical to credit earned during the day. A student may register for courses in the evening as a degree-seeking or a special (nondegree-seeking) student.

Admission guidelines for programs requiring specialized supplementary information

School of the Arts freshman admission guidelines

Students applying to the School of the Arts must submit the standard university undergraduate application in addition to supplemental materials. The School of the Arts faculty reviews all applications to programs in the School of the Arts. All visual and design applicants and all technical theatre applicants are required to submit a visual portfolio with their application. All performing arts applicants are required to visit VCU for an audition and/or interview. Students applying to any visual or performing arts discipline also must submit a letter of recommendation. With the exception of fashion merchandising and some concentrations in art history, applicants to the visual arts (including technical/design theatre) are required to complete the drawing and design exercises specified in the application instructions. Additional artwork should not be submitted unless requested. Applicants to the departments of Dance and Choreography, Music or Theatre must complete the written information in the application instructions and are required to participate in an audition arranged by the appropriate department. Applicants to the Department of Music also must show evidence of proficiency in one or more areas of music performance and must take the musicianship placement examination.

Transfer admission guidelines

Transfer applicants are considered for admission provided they present evidence of good standing at the last institution attended. Although a minimum cumulative GPA of 2.0 on a four-point scale in all nonremedial credits attempted at all accredited colleges attended is required for admission, preference is given to transfer applicants presenting a GPA of at least 2.25. Transfer candidates who have earned fewer than 30 semester credits/45 quarter credits and who are 21 years of age or younger must submit the SAT or ACT results and also must meet specific guidelines listed in the "Freshman Admission Guidelines" section.

Some programs have additional requirements for admission as a transfer student. For example, transfer applicants to the schools

of the Arts, Business, Engineering and Mass Communications on the Academic Campus, and to the health science programs on the MCV Campus should consult the appropriate section of this bulletin for admission requirements.

Transfer applicants who are not admitted with degree status may be eligible to enroll as special (nondegree-seeking) students as determined by the Office of Undergraduate Admissions.

Transfer applicants ineligible to return to a former institution because of an academic suspension may not enroll at VCU for a period of one year for the first suspension and five years for the second suspension.

Transfer applicants who have been suspended from another institution for nonacademic or disciplinary reasons are referred to the Office of the Vice Provost for Student Affairs for preadmission clearance.

Additional information for transfer students is available in the VCU Transfer Guide or on the Web at http://www.vcu.edu/ugrad/admissions101/transfers/transfer_guide.html.

State policy on transfer agreement between Virginia Community Colleges and Richard Bland College

VCU welcomes applications from Virginia Community Colleges and Richard Bland students who have earned the associate in arts, associate in science or associate in arts and science degrees or approved A.A.&S. or A.S. programs in general studies. Students holding these degrees will have junior standing and will be considered to have met all lower-division general education requirements for Academic Campus programs with the exception of certain lower-level and upper-level program requirements that also apply to native students. Students should closely follow the detailed course suggestions offered in the VCU Transfer Guide for Virginia Community Colleges and Richard Bland College. By selecting certain courses to fulfill requirements within the A.A., A.S. or A.A.&S. degree programs, additional lower division courses needed after transfer to VCU can be held to a minimum. A maximum of 63 semester credits can be accepted from the A.A., A.S. or A.A.&S. degrees.

Additionally:

- Students must make proper application for admission to VCU.

- Only credits applied toward the receipt of the associate's degree will be accepted, not to exceed 63 credits.
- Credits needed to meet major prerequisites will be based on the Course Equivalency Guide or agreements resulting from program to program transfer agreements.
- Students will not be required to repeat courses that have been satisfactorily completed at a Virginia community college except in cases where special restrictions apply to all students.
- Applicants to degree programs that are competitive are not guaranteed admission but will be evaluated on the same basis as native students.

For students with the A.A., A.S. or A.A.&S. degrees from a VCCS institution or Richard Bland College, VCU degree requirements in effect at the date of the student's admission to the VCCS or Richard Bland College associate's degree program will be used in certifying the student for graduation if the student has not interrupted his or her associate's degree more than two consecutive semesters (excluding summer sessions).

Requirements of native students which would apply to associate's degree-holders are:

1. Freshman English: All B.A. and B.S. programs in the College of Humanities and Sciences, schools of Business, Social Work, Nursing, Allied Health Professions and the Program in Dental Hygiene require completion of ENG 111-112 (ENGL 101-102 at RBC) with at least "C" grades in both courses or repeat the course(s) at VCU.
2. All B.A. and B.S. programs in the College of Humanities and Sciences require competency through the elementary level of a foreign language; English, history and political science majors through the intermediate level.
3. Computer literacy: all Bachelor of Arts and Bachelor of Science students in the College of Humanities and Sciences and the School of Social Work must complete and pass the Computer Proficiency Assessment prior to graduation. Equivalent VCCS courses which fulfill this assessment requirement are CSC

110 or 155 or IST 100. The equivalent RBC course is CSCI 202.

4. Mathematics/statistics: All bachelor's degree programs in the College of Humanities and Sciences have mathematics/statistics requirements that must be met. See specific program for required courses and their equivalents.
5. Urban environment: All Bachelor of Arts and Bachelor of Science programs in the College of Humanities and Sciences require the completion of a three-credit course dealing with aspects of modern day life. Typically, with few exceptions, the course is completed in the last 60 credits of the undergraduate program at VCU.
6. The School of Social Work requires a 2.5 GPA for admission to upper-level courses. The School of Business requires a 2.25 GPA (except for the Department of Information Systems which requires a 2.75 GPA) for admission to upper-level course work. The School of Mass Communications requires a 2.35 GPA for admission to upper-level work.

For students pursuing a career in early, middle, special or secondary education through the Extended Teacher Preparation Program of the College of Humanities and Sciences and the School of Education, a 2.5 GPA and successful completion of the PRAXIS I examination are required for entry into Teacher Preparation, a stage in the program after the student has completed 60 credits. For students applying to majors in the School of the Arts, a portfolio evaluation for visual arts applicants and an audition for performance applicants are required.

7. The professional baccalaureate programs in Social Work, Nursing, Allied Health Professions, the Dental Hygiene program in the School of Dentistry and the doctoral programs in the Physical Therapy and Pharmacy have specific program-related lower-level requirements that must be completed to make proper application and to achieve success in the program, if admitted. They are not "general education" requirements in the traditional sense of the word. These courses are offered at almost all VCCS institutions and are widely publicized.

Generally, only courses with "C" grades or better will be accepted in transfer.

The health, physical education and exercise science programs have specific lower-level requirements related to state-approved program status, professional certification and entry into the practicum sequence. Specified science courses are prerequisite for entry into upper-level kinesiology and exercise science courses. While some flexibility is available in the transfer of some other courses into the lower-level part of the programs, the first two years of the health, physical education and exercise science programs are not traditional general education as mentioned in the previous paragraphs.

8. Transfer work from some occupation-technical programs is reviewed under specific conditions for the Bachelor of Interdisciplinary Studies program and the special program in nursing for community college R.N. degree-holders who wish to complete the bachelor of science in nursing.
9. Students wishing to transfer to the School of Engineering must have a 3.0 GPA with no grades below a "C." Also, "B" grades or better must be attained in mathematics, science or engineering courses to be considered for transfer. Transfer students from the Virginia Community Colleges System will follow existing articulation agreements.
10. The approved A.A.&S. or A.S. programs in general studies are: Dabney Lancaster, Lord Fairfax, Mountain Empire, Patrick Henry, Piedmont Virginia, Southside, Virginia Western, Wytheville and Germanna Community colleges.
11. Writing intensive courses: The College of Humanities and Sciences and selected other departments at VCU require "writing intensive" courses. Generally, this requirement is fulfilled by completing upper-level VCU courses that have no equivalency to VCCS or RBC courses.

Detailed information about the Transfer Module and Virginia Community College/VCU and Richard Bland College/VCU transfer equivalent courses is available

on the Web at http://www.vcu.edu/ugrad/admissions101/transfers/transfer_guide.html.

Virginia Commonwealth University/Virginia Community College System Guaranteed Admission Agreement with Teacher Education Provision Admission

The VCU GAA-TEPA in the area of an arts and sciences core leads to a transferable associate degree (A.A.&S., A.A. or A.S.) that will facilitate entry into a teacher education program (PK-6, middle education or selected areas of special education) at VCU. The conditions shown in the VCU Transfer Guide for the A.A.&S., A.A. or A.S. programs apply. In addition, a student must earn at least a 2.50 GPA at VCU and have passed Praxis I before formal admission to the teacher preparation program.

Readmission guidelines

Readmission is subject to individual degree program requirements. Contact the program department or consult the appropriate program portion of this bulletin for specific information.

Students who withdraw from all courses after the first week of the semester are considered to have been enrolled for that semester. A student who does not attend VCU for three or more successive fall and spring semesters excluding summer sessions, must submit an application for re-admission to the Office of Undergraduate Admissions. **Students who have attended another institution and wish to return after the allowable absence period or who have been suspended since their last enrollment at VCU also must apply for re-admission.** This application must be done before the application submission date for the semester in which the student plans to return.

Students who wish to return to VCU after enrolling at another institution are considered transfer applicants and are reviewed for admission based on the transfer admission guidelines related to good standing and cumulative GPA. Students who attend another institution during periods of suspension from VCU are considered readmitted students for admission purposes. If readmitted, they assume their VCU GPA and academic status; any course work taken at another institution during the suspension will be evaluated according to regular procedures.

Readmission applicants who wish to change their majors may be required to meet additional requirements for some programs. Applicants to the School of the Arts must submit supplemental materials as described in the Application for Undergraduate Admission.

Students may apply for readmission to VCU for the semester following completion of the first suspension period (two semesters, one of which may be summer). Under certain circumstances, students may be considered for readmission from the second and final suspension after a period of five years. Students on second suspension who wish to return before the required completion of the five-year suspension period must appeal their readmission to the Academic Regulations Appeals Committee. Students should contact the dean's office of the school or college from which they were suspended to initiate this process. For more information on suspension policies, refer to the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

Applicants who have been suspended from the university for nonacademic or disciplinary reasons are referred to the Office of the Vice Provost for Student Affairs for preadmission clearance.

International student admissions

VCU encourages qualified international students, both immigrant and nonimmigrant, to seek admission to the university. See the "Office of International Education" chapter of this bulletin for guidelines.

Admission procedures

It is the responsibility of the applicant to ensure that all required admission documents are forwarded to the Office of Undergraduate Admissions before the deadline. (Refer to the "Undergraduate Application Deadlines" section in this chapter.)

Applications and supporting credentials for undergraduate programs offered on both campuses must be submitted to the Office of Undergraduate Admissions, Virginia Commonwealth University, P.O. Box 842526, Richmond, VA 23284-2526; telephone (804) 828-1222 or (800) 841-3638.

All applications and supporting documents become the property of the university and are not returned to the applicant. After all required documents have been received,

candidates are notified in writing of the decision by the appropriate admissions office.

The following must be submitted to the Office of Undergraduate Admissions when applying for an undergraduate degree program:

1. **Official application form.** Candidates seeking admission or readmission to the university in an undergraduate degree program must file an official Application for Undergraduate Admission, signed by the applicant, before the specified deadline. Students planning to complete a second baccalaureate degree also must submit this application. Care should be taken to read the admissions guidelines in this bulletin, to follow the directions accompanying the application and to complete all information requested. Incomplete or incorrect applications will result in a processing delay.
2. **Application fees.** Application fees are nonrefundable and should be submitted by check or money order with the application for admission. Do not submit cash. The application fee is \$30. Currently enrolled VCU Academic Campus program students applying to undergraduate MCV Campus programs are not required to remit the application fee. Applications received without the application fee or an approved waiver request may be returned to the sender.
3. **Official transcript(s).** Freshman applicants are required to submit their official high school transcript(s) showing course work completed to date. The secondary school record should contain courses and grades earned, rank in class and overall GPA. A final transcript also is required showing date of graduation, overall GPA and rank in graduating class if available. Freshman applicants still in high school submitting a paper application are encouraged to have their guidance counselors submit the Application for Undergraduate Admission with their transcripts. GED holders must submit their partial high school transcripts (if high school was attended).

Transfer candidates must request the registrar of each college attended to send two official transcripts of their course work. Transfer candidates who have earned fewer than 30 semester

credits/45 quarter credits also must submit their secondary school records.

Applicants to the School of Nursing undergraduate program on the MCV Campus must submit official transcripts from all colleges, universities and hospital schools/programs attended. School of Nursing and School of Pharmacy applicants also must submit official high school transcripts.

The Office of Undergraduate Admissions will obtain, for readmission candidates, the student's VCU transcript. Applicants who have attended other colleges since leaving VCU must request the registrar of each college to send official transcripts to the Office of Undergraduate Admissions.

4. **Test scores.** Freshman applicants (high school graduates and GED holders) 21 years of age or younger must submit SAT I or ACT scores and, if applicable, an official copy of their GED scores.

Transfer applicants 21 years of age or younger and with fewer than 30 semester/45 quarter credits of college work must submit SAT I or ACT scores.

All School of Nursing applicants must submit SAT, ACT or GRE scores regardless of age.

Foreign applicants whose native language is other than English must submit scores for the Test of English as a Foreign Language in addition to any other test scores required. In general, VCU requires a minimum score of 550 on the paper TOEFL or 213 on the computer TOEFL, but some programs may require a higher TOEFL score. Some MCV Campus programs also may require TWE (Test of Written English) or TSE (Test of Spoken English) scores.

5. **Supplemental application packets.** Art applicants must submit supplemental materials as described in the Application for Undergraduate Admission.

Foreign applicants submit the Financial Support Statement with the application for admission in addition to any other supplemental application packets, which may be required.

6. **Interviews and auditions.** Applicants to the following programs will be contacted by the program for an interview or audition: clinical laboratory sciences, dance/choreography, music, interdisciplinary studies, radiation sciences and theatre. Although interviews are not required for other programs, applicants are welcome to meet with an admissions counselor to discuss their applications. In some cases, however, the Office of Undergraduate Admissions may require an interview of any applicant.
7. **Immunization requirements.** Virginia law requires all full-time students to submit an official certification of immunization to University Student Health Services prior to registration. Detailed information on immunization requirements can be found in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Note that some MCV Campus programs may require additional immunizations because of high patient contact.

Admission to the University Honors Program

Eligibility requirements for incoming freshman students

The University Honors Program is open to qualified entering freshmen, continuing students who demonstrate excellence after enrolling at VCU and transfer students who have shown similar ability at other institutions.

1. High school graduates with combined SAT I scores of at least 1270 who rank in the upper 15 percent of their graduating class and have a 3.5 or higher unweighted high school GPA (on a 4-point scale) **or** are the recipients of a VCU Presidential Scholarship are eligible for automatic admission to the University Honors Program upon application.
2. Academically talented students who do not meet the criteria for automatic admission also are encouraged to apply. In addition to the application for membership in the Honors Program, these applicants should submit their

high school transcripts along with an essay explaining why the admission criteria have not been met, a thoughtful description of what the student will contribute to the Honors Program and how the student will benefit from membership in the program.

A subcommittee of the Honors Council reviews applications for students who do not meet admission requirements. The primary conditions for acceptance are evidence of a strong personal commitment to an honors education and evidence of an ability to do honors level college course work. In determining admission, the subcommittee reviews the application for evidence of:

- commitment to a challenging education as proven by course selection in high school.
- academic excellence as reflected by cumulative high school GPA, overall class ranking and SAT and/or ACT test results.
- leadership experience, extracurricular activities and letters of reference that support the applicant's ability and willingness to make a significant contribution to the Honors Program community.

Transfer student admissions

Transfer students who apply to the University Honors Program must have a 3.50 cumulative GPA from their transfer institution to be offered admission upon application.

Admission for current VCU students

Continuing VCU students or transfer students who have achieved a 3.50 cumulative GPA in 30 semester hours of college credit are eligible for admission upon application.

Undergraduates from all schools and the college who meet the eligibility requirements are invited to apply. For application materials visit <http://www.vcu.edu/honors>.

Responsibilities

Admission to the Honors Program is a privilege that comes with certain responsibilities. In addition to maintaining at least a 3.50 GPA, honors students are expected to participate in the Honors Program community by enrolling in at least one honors course per academic year and attending at least three honors seminars or other honors events per semester.

To continue in the University Honors Program, a student must maintain a cumulative GPA of 3.50 or higher. Should a student's cumulative GPA fall below 3.50, the student may be placed on Honors Probation for a semester. Withdrawal from the Honors Program is not noted on the student's permanent record.

Guaranteed Admission Programs

This series of programs guarantees some honors students admission to the professional-level health sciences program of their choice or to many of the graduate programs of the university (see the Graduate and Professional Programs Bulletin for specific program information). Honors students who receive guaranteed admission generally may enter the program of their choice without test scores required, except for statistical purposes, and without payment of the application fee, provided they fulfill the requirements for graduating with University Honors and satisfy the curricular prerequisites of the program they plan to enter. To maintain guaranteed admission status, honors students must maintain the 3.50 GPA, and progress satisfactorily in honors courses and special courses designated by the professional or graduate program they plan to enter.

Professional Health Sciences Guaranteed Admission Programs

Entering honors freshmen with a combined SAT score of at least 1270 (from one test date), with neither score below 530, may apply for guaranteed admission to the MCV Campus professional programs in medicine, clinical laboratory sciences, dentistry, dental hygiene, occupational therapy, pharmacy, physical therapy or radiation sciences. Continuing honors students may apply for a guaranteed seat in the medical or physical therapy program during their sophomore year (note: the option in

medicine applies only to freshmen entering VCU in the fall of 2000 and thereafter; contact the University Honors Program for specific details).

Graduate Studies Guaranteed Admission Programs

Honors students interested in academic or research careers in anatomy, biochemistry and molecular biophysics, biostatistics, human genetics, microbiology and immunology, pharmacology and toxicology, physiology and public health are invited to apply for guaranteed admission to the School of Medicine. Programs in this school lead to master of science and doctor of philosophy degrees.

Honors students, if they meet the criteria established by the School of Business, may be guaranteed admission to programs for any of the master's degree programs offered by the School of Business. The master's degrees are valid terminal degrees for careers in management and administration or may be used to satisfy a substantial portion of the requirements for the doctoral program offered at VCU. High school seniors who have pursued advanced course work and who meet the requirements for full admission to the University Honors Program may apply for guaranteed admission to the combined B.S./M.B.A. program which permits them to complete both degrees in four years.

Students accepted into the University Honors Program who are planning careers as elementary, secondary or special education teachers may receive guaranteed admission to the graduate phase of the university's extended teacher preparation program. In this program, students earn a bachelor's degree in the College of Humanities and Sciences, a master's degree in the School of Education, and satisfy the certification requirements of Virginia and more than 30 other states. The Honors Program in Teacher Preparation strives to develop teachers with outstanding scholarship and sound professional competency. Other graduate programs in the School of Education, such as exercise science and counselor education also offer the guaranteed admission option.

The College of Humanities and Sciences seeks to attract graduate students of the highest caliber and to prepare them, through research and instruction, to meet local and national needs for highly-trained men and

women. Students accepted to the University Honors Program may apply for guaranteed admission to master's degree programs in criminal justice, history, mathematical sciences, physics, psychology, public administration or urban studies. Other programs offering early acceptance into the graduate school through the Honors Program include gerontology, clinical laboratory sciences, nurse anesthesia, physical therapy, rehabilitation counseling, health administration and biomedical engineering.

Guaranteed Admission Program application procedures

To be accepted into a Guaranteed Admission Program, a student must be accepted by the university, by the University Honors Program, and by the Admissions Committee of the program the student wishes to enter. A separate application for guaranteed admission is required. The Admissions Committee may require an interview. The application deadline for the Guaranteed Admissions Program into the School of Medicine (M.D. degree) is Dec. 15 of the year before matriculation at VCU. The deadline for all other health care programs is Feb. 1.

For additional information about the Guaranteed Admission Programs of the VCU Honors Program, write or call Dr. Anne L. Chandler, Associate Director, University Honors Program, Virginia Commonwealth University, P.O. Box 843010, Richmond, VA 23284-3010, (804) 828-1803, alchandler@vcu.edu.

Undergraduate application deadlines

Freshman application deadlines

Regular decision plan

All applicants to programs on the Academic Campus must submit their applications for the fall semester by Feb. 1 and for the spring semester by Dec. 1. Applications for admission received after these dates will be considered on a space-available basis. Applicants seeking admission to the Guaranteed Admissions program to VCU's School of Medicine must submit the Guaranteed Admissions Application to the VCU Honors Program by Dec. 15.

Transfer application deadlines

While application deadlines for most programs are June 1 for the fall semester and Dec. 1 for the spring semester, the following application deadlines are established for the programs indicated:

	Fall semester
dental hygiene	Feb 15
nursing (traditional)	Jan 15
nursing (R.N.)	Mar 15
radiation sciences	Feb 1
clinical laboratory sciences	May 15

Applications for admission to the programs listed above (except for the program in dental hygiene) received after these deadline dates will be considered on a space-available basis.

Admission notification

Freshman applicants accepted to the university for the fall semester are notified by letter of the conditions of their acceptance by April 1 if they meet the Feb. 1 recommended deadline. Freshman applicants who apply under the regular admission process may receive early notification of their acceptance if they present exceptional admission credentials. Transfer applicants for the fall semester to programs on the Academic Campus who apply before the June 1 deadline are notified by July 1. **All applicants for the spring semester are notified on a rolling basis.**

Information on advisement and registration procedures, the immunization form and housing information is included with the acceptance letter. Virginia requires that all full-time students enrolling for the first time in any state institution of higher education furnish an immunization record from a qualified licensed physician. New VCU students must submit their immunization form to University Student Health Services.

When an applicant is tentatively accepted to the university, a final transcript is required to complete the individual's admission file. If the official transcript is not received by the end of the fourth week of classes of the semester for which the student was accepted, an administrative hold will be placed on future registrations until the credentials are received establishing the student's eligibility.

The university reserves the right to rescind offers of admission if the final documents

indicate that the applicant no longer satisfies the entrance requirements upon which acceptance was granted.

Responding to the offer of admission

Upon responding to the offer of admission, all immunization records should be sent to University Student Health Services.

Fall freshman applicants accepted to the university by April 1 must notify the Office of Undergraduate Admissions of their intent to enroll or not to enroll by May 1. Fall freshman applicants, if accepted after April 1, must notify the university within four weeks.

Fall transfer applicants accepted to programs on the Academic Campus must notify the Office of Undergraduate Admissions of their intent to enroll by July 1 or four weeks after receiving their letter of admission. Fall applicants to the health sciences programs must respond within the time frame listed on their acceptance letters as determined by the individual department. **All students accepted for the spring semester must respond to the offer of admission by Jan. 1.**

A nonrefundable deposit is required of all applicants who accept VCU's offer of admission. The deposit is credited to the student's account with the university and is not deferrable to a future semester. Students experiencing economic hardships may request a waiver of the deposit through a letter from a school official (counselor, adviser, financial aid counselor, principal) submitted to the Office of Undergraduate Admissions. The decision to grant a waiver is based on information submitted to the university on the student's Free Application for Federal Student Aid.

Students who defer their acceptance to a later semester forfeit their initial tuition deposit and must submit a second deposit for the semester in which they choose to enroll.

Post-admission advising

Students are encouraged to seek advising, depending on intended major, from the appropriate office listed:

College of Humanities and Sciences

(including humanities, sciences, social sciences, mass communications, pre-health sciences)
Office of the Associate Dean
Hibbs Building, 900 Park Ave., Room 205
(804) 828-1673

Humanities and Sciences/Undeclared
Hibbs Building, 900 Park Ave., Room 207
(804) 828-2333

Humanities and Sciences/Bachelor of Interdisciplinary Studies
1000 W. Franklin St.
(804) 828-8420

School of Allied Health Professions

Department of Clinical Laboratory Sciences
Randolph Minor Annex – Basement
301 College St.
(804) 828-9469

Department of Radiation Sciences
West Hospital
1200 E. Broad St., 6th Floor West Wing
(804) 828-9104

School of the Arts

Art Foundation
Office of the Director
609 Bowe St., 5th Floor
(804) 828-1129

Other Advising
Contact major department

School of Business

Office of the Associate Dean for Undergraduate Studies
Business Building, 1015 Floyd Ave., Room 3119
(804) 828-3710

School of Dentistry

Lyons Building, P.O. Box 980566
520 N. 12th St., Suite 309
(804) 828-9196

Division of Dental Hygiene
Wood Memorial Building, P.O. Box 980566
521 N. 11th St., Suite 318
(804) 828-9096

School of Education

Office of the Assistant Dean
Oliver Hall, 1015 W. Main St., Room 2090
(804) 828-3382 or see Humanities and Sciences

Health, Physical Education and Exercise Science
817 W. Franklin St., Room 221
(804) 828-1948

School of Engineering

601 W. Main St.
(804) 828-3925

School of Nursing

Nursing Education Building
1220 E. Broad St., P.O. Box 980567
(804) 828-5171

School of Social Work

Office of the Director for the B.S.W. Program
1001 W. Franklin St., Room 103
(804) 828-0703

University Honors Program

West Grace Street Student Housing
701 W. Grace St.
(804) 828-1803

Undergraduate applicants not admitted to degree status but offered special status may request information or assistance in formulating alternative educational plans from the College of Humanities and Sciences' Office of Undergraduate Advising, 900 Park Ave., Room 207, P.O. Box 842002, Richmond, VA 23284-2002. Phone: (804) 828-2333. Fax: (804) 828-6048.

Orientation

The university provides orientation during the summer, fall and spring to all new undergraduate students. Orientation programs are designed to increase the students' awareness of the university's programs, services and facilities and to provide opportunities for faculty advising and registration for their first semester of classes.

After acceptance to the university, students are sent detailed information regarding the orientation program. Included in the summer orientation program is a program for the parents of freshman students that is especially helpful to their understanding of the university and its future relationship to their sons and daughters.

For additional information about orientation, contact the First Year Student Services, Virginia Commonwealth University, P.O. Box 842505, Richmond, VA 23284-2505, (804) 828-3700; <http://www.students.vcu.edu/compass>. For information regarding orientation to MCV Campus programs, contact the individual department.

Evaluation of transfer credit – four-year and two-year institution applicants

An evaluation of transferable credits for applicants to both the Academic Campus

and the MCV Campus programs is made by the appropriate school or department after the accepted applicant's final transcript has been received by the Office of Undergraduate Admissions.

After an accepted student's final grades have been received by the Office of Undergraduate Admissions, a transfer credit evaluation form is prepared by the student's intended VCU college or school listing the transferable courses and is sent to the student. Students accepted to programs on the MCV Campus will receive the transfer credit evaluation form with the letter of acceptance.

Accepted transfer credit contributes to hours earned and toward fulfillment of degree requirements at VCU. Although the grades of accepted transfer courses are recorded on the student's VCU transcript, hours attempted and quality points earned are not recorded. Accepted transfer credits are not included in the transfer student's overall GPA at VCU. **However, calculation of the GPA requirement for admittance into the School of Business advanced program considers grades earned at all institutions attended.** The GPA for fulfillment of VCU degree requirements is computed only from courses taken at VCU. The grades and quality points of transfer courses are evaluated in the computation determining graduation honors. Accepted quarter-hour credits recorded on the VCU transcript are converted to semester-hour credits.

Credits earned at other institutions carrying a grade of "D" are not accepted for transfer (see exception relating to Articulation Agreement with state two-year institutions).

Courses taken on the "pass/fail" or "pass/no pass" systems or courses taken for grades of "satisfactory" or "unsatisfactory" that receive earned credits and a "satisfactory" grade (or comparable passing grade) from the transfer institution receive equivalent semester credit. Transfer credits graded as "pass/fail" will not be included in the computation for determination of academic honors at VCU.

Degree candidates must complete the last 25 percent of the credit semester hours required for their bachelor's degree program at this institution.

A student who changes his or her major after beginning classes at VCU must have another evaluation of credits completed by the school offering the new major. In this case, the department chairperson of the new major is not obligated to accept all the

courses accepted for transfer credit in the initial evaluation. This re-evaluation does not change the completion of general education requirements per the State Policy on Transfer if the student has completed the associate degree. Conversely, a second evaluation following a change of major may result in transfer of a greater number of credits.

Attainment of the college/school or department minimum GPA and any other standard requirements is required of all students, including, in the case of the School of the Arts, a portfolio evaluation for visual arts applicants and an audition for performing arts applicants. Applicants to degree programs that are competitive are not guaranteed admission but will be evaluated on the same basis as currently enrolled VCU students.

Students who have earned the A.A., A.S. or A.A.&S. degree from a VCCS institution or Richard Bland College should refer to the articulation agreement information in this bulletin.

Students from VCCS institutions, Richard Bland College or other two-year institutions **who have not completed the college parallel A.A., A.S. or A.A.&S. degree** will have the exact designation of their status determined after an evaluation of acceptable credits. This evaluation is determined by the equivalencies shown in the VCU Transfer Guide for Virginia Community Colleges and Richard Bland College that may be accepted, including not more than 50 percent in the major field of study. However, the applicant should realize that more than two additional years may be necessary to complete the degree requirements in certain curricula.

Credits earned in community college occupational or technical programs will be judged on their own merits to determine their applicability toward VCU degree requirements. In addition, many accredited institutions offer correspondence courses, which may be considered for transfer credit.

Other sources of academic credit

Credit for Advanced Placement (AP) tests of the College Entrance Examination Board

AP tests passed with scores of 3, 4 or 5 will result in the award of three to eight semester credits per AP test. The chart below provides information about the VCU equivalent credit for the various AP tests.

To ensure consistency, the College of Humanities and Science Dean's Office is the official credit notification point for AP credit for all university programs. Final determination of credit will be made after test results have been received and evaluated by the dean's office. Credits awarded are counted as credits earned toward the degree, but are not used in the computation of the student's VCU grade-point average.

Courses in music and theater will be evaluated by the School of the Arts before award of credit, if any. For more information, contact the College of Humanities and Sciences Dean's Office at (804) 828-1673.

Credit for International Baccalaureate (IB) Diplomas and courses

IB Higher Level (HL) tests passed with scores of 3-7 and Standard Level (SL) tests passed with scores of 4-7 will, depending on the test, be considered for advanced standing and credit for the corresponding courses at VCU. The chart in the appendices of this bulletin provides information about the VCU equivalent credit for IB scores. Successful completion of the IB Diploma will entitle the student to automatic admission to the University Honors Program. Three elective credits will be awarded for the "Theory of Knowledge" course.

To ensure consistency, the College of Humanities and Science Dean's Office is the official credit notification point for IB credit for all university programs. Final determination of credit will be made after test results have been received and evaluated by the dean's office. Credits awarded are counted as credits earned toward the degree, but are not used in the computation of the student's VCU GPA.

Courses in music and theater will be evaluated by the School of the Arts before award of credit, if any. For more information, contact the College of Humanities and Sciences Dean's Office at (804) 828-1673.

College Level Examination Program

The College Level Examination Program is designed to allow people who have gained knowledge outside the classroom to take examinations and receive college credit for what they have learned.

Procedures for VCU students

1. Students should obtain CLEP approval forms, information about CLEP general and/or subject examinations, VCU course equivalency information, optional essay requirements and CLEP applications from the CLEP Office, Virginia Commonwealth University, 1000 W. Franklin St., P.O. Box 843079, Richmond, VA 23284-3079; (804) 828-8420.
2. Students should discuss the examination(s) to be taken with an adviser, and obtain permission signatures from the adviser and dean of the school of the major on each of the three approval forms. If the optional essay is required for a subject examination, it should be indicated on the CLEP approval forms and on the CLEP application.
3. Students should return the completed CLEP approval forms, the completed CLEP application and the proper fee to the CLEP Office. After receipt of these materials and fees, the examination time will be scheduled.
4. The examination score and the result of the optional essay are sent to the dean's office in which the student is a major for final action. The dean then sends formal notification to the student, the Office of Records and Registration and the student's adviser.
3. If a student has earned CLEP subject examination credit, the student may not take a VCU course for credit that would duplicate the CLEP credits already earned.
4. The CLEP general examination in English composition is not acceptable for VCU credit. Students may take the CLEP Freshman College Composition subject examination for credit equivalent to ENGL 101. There is no CLEP exam equivalent for ENGL 200. In order to receive credit for the CLEP general examination in mathematics, the student must take the Mathematics Placement Test and test at the STAT 208, 210 or MATH 200 level. To make arrangements to take this placement test, contact the Department of Mathematics and Applied Mathematics at (804) 828-1301, ext. 107. Results should be reported to the dean of the school in which the student is a major.
5. A maximum of 54 semester credits can be earned through CLEP examinations.

Undergraduate credit by examination

Recognizing that VCU enrolls students of varying backgrounds and experiences, the university provides its students the opportunity to accelerate their education through credit by examination. The following outline describes conditions under which credit by examination may be given and the procedure for doing so.

2. The examinations, if available, may be taken by any enrolled student during the fall and spring semesters and during the summer session.
3. The student wishing to take credit by examination must meet the following requirements:
 - a. not have received a grade listed in this bulletin, including "AU" or "W" for the course for which credit by examination is sought. Also, the student should not have been granted transfer credit for a similar course taken elsewhere,
 - b. be a currently enrolled student as certified by the examining department and
 - c. meet departmental and school eligibility requirements as evidenced by the written approval of the chair of the examining department.
4. After consultation with the major adviser and within the first four weeks of a semester or the first week of a summer session, the student must complete the Credit by Examination Approval Form with the department chair. The form, available from the department, should be left with the chair when it is completed.
5. Within two weeks, the student is notified by the dean's office of the time and place of examination.
6. After notification, but before taking the exam, the student must pay the university cashier the fee established by VCU for each credit being sought. As verification of payment, the student presents the receipt to the department chair before the examination is taken.
7. After the examination is taken, the results and the examination are sent to the dean's office, which notifies the student of the results. If the student passes the examination, the course title, credits earned and the grade "CR" are recorded on the student's permanent academic record. Credits so earned are applied toward the graduation requirement for total credits. However, these credits are not included in the computation of the student's GPA.

Regulations for VCU students

1. CLEP credit is officially awarded only to students who are fully accepted into a VCU degree program.
2. A student may not attempt a subject or general examination if it duplicates in part, or full, any VCU course or combination of courses that the student has already completed or enrolled in for credit. For example, a student who has completed courses in U.S. and European history, sociology, anthropology and psychology, or similar courses, is not eligible to take the social sciences and history general examination. The dean's office of the school in which the student is a major makes the decision about the appropriateness of taking a particular examination.
1. With the approval of the dean, each department or program shall:
 - a. determine which, if any, courses shall be available for credit by examination. The student should check with the department offering course work in the area in which he or she wishes to take credit by examination for a list of the courses so designated,
 - b. determine the types of examinations, standards of evaluation and evaluators for the courses so designated and
 - c. determine the qualifications for students to be eligible to take the examinations.

Military service and ROTC courses

The university may grant credit for formal military service school courses offered by the various branches of the U.S. Armed Services. The guidelines for granting such credit include:

1. the positive recommendation of the Commission on Accreditation of Service Experiences of the American Council on Education as stated in the most recent edition of *A Guide to the Evaluation of Educational Experiences in the Armed Services*, and
2. the applicability of such credit toward the student's degree program as interpreted by the department or school in which the student seeks a degree. Credits accepted are counted as credits earned toward the degree, but are not used in the computation of the student's GPA. The student should consult with the dean of the school or college for further details about the procedures for awarding credit for military service school courses.

Army ROTC is open to any VCU student. Advanced standing may be granted to veterans, junior ROTC graduates, or members of the Reserves/National Guard after the department chair's review of academic records and verification of ROTC academic alignment. The number of credits accepted toward graduation requirements is determined by each school. See *Military Science* in the "College of Humanities and Sciences" chapter of this bulletin.

Credits earned through the International Student Exchange Program

Credits earned by a VCU student through ISEP appear on the student's transcript, but are not included in the computation of the student's cumulative GPA. See the "Office of International Education" chapter of this bulletin. This policy became effective July 1990.

Senior Citizens Higher Education Program

A senior citizen may take courses without paying tuition or required fees, except for course materials, under certain conditions.

If the senior citizen had a federal taxable income of not more than \$10,000 in the preceding year, the individual may take a course for academic credit. If the person's taxable income exceeded \$10,000, the individual may only audit the course for free. A senior citizen, regardless of income level, may take a noncredit course for free.

No limit is placed on the number of terms, quarters or semesters in which a senior citizen who is not enrolled for academic credit may register for courses, but the individual can take no more than three noncredit courses in any one term, quarter or semester. There will be no restriction on the number of courses that may be taken for credit in any term, semester or quarter, or on the number of terms, semesters or quarters in which an eligible senior citizen may take courses for credit.

The two additional conditions listed below shall be met before a senior citizen may take a course under the provisions of this program:

1. The senior citizen shall meet the appropriate admission requirements of the institution in which the student plans to enroll.
2. The senior citizen may be admitted to a course only on a space-available basis after all tuition-paying students have been accommodated, unless the senior citizen has completed 75 percent of the degree requirements necessary for a degree. At such time in the senior citizen's program, the senior citizen can enroll in courses at the same time as other tuition-paying students.

Enrichment and acceleration opportunities

Special honors programs and courses are offered at the university. Refer to the appropriate school sections of this bulletin for further information. Interdisciplinary honors courses designed for superior freshmen in any program also are available.

Early Admission Program

The Early Admission Program permits exceptional students the opportunity to enroll in undergraduate programs at the university as freshmen after the completion of the junior year of high school. The program is available to students who

demonstrate readiness for college by their high school record, SAT results and in an interview with an admissions counselor. Applicants for the Early Admission Program must present a minimum GPA of 3.2 and minimum combined SAT scores of 1180 or demonstrate exceptional talent in their intended area of study. Additionally, early admission applicants must be within two of the required units for graduation and have the written approval of the high school principal (or designee) to seek admission to college as full-time undergraduate students. Candidates interested in this program should contact the Office of Undergraduate Admissions for further information.

Advanced Scholars Program

Qualified high school students from Richmond and surrounding area high schools may be permitted to carry college-level courses at the university while concurrently completing the high school diploma. Students may select courses of interest and upon successful completion of the courses may receive college credit. However, courses selected should not be available in the high school curriculum.

Candidates must be nominated and approved by the secondary school principal. A maximum of 100 candidates are accepted each semester and candidates may enroll in no more than two courses per semester.

As a guide to secondary schools, the following criteria for selection are considered.

1. Each candidate must be nominated and approved by the secondary school principal.
2. Each candidate must have achieved a total of 1180 points on the SAT I or 118 on the PSAT.
3. Each candidate must be a high school junior or senior.
4. The desired courses to be studied must be available and appropriate.
5. All parties should emphasize that tuition is charged for courses taken as an Advanced Scholar.

Notification forms and other information may be obtained from the Office of Undergraduate Admissions, Virginia Commonwealth University, P.O. Box 842526, Richmond, VA 23284-2526 (804) 828-1222.

Expenses and Financial Aid

Office of Financial Aid
901 W. Franklin St., Shafer Court Entrance
P.O. Box 843026
Richmond, VA 23284-3026
(804) 828-6669 • Fax (804) 827-0060
<http://www.vcu.edu/enroll/finaid>
faidmail@vcu.edu

Student Accounting Department
827 W. Franklin St.
P.O. Box 843036
Richmond, VA 23284-3036
(804) 828-2228
<http://www.vcu.edu/enroll/sa>
stuacctg@vcu.edu

Office of Financial Aid

Susan F. Kadir
Director

The Office of Financial Aid provides a variety of services to help students afford higher education. In addition to offering grants, work-study employment and loans, the office also offers budgeting workshops, debt management counseling, and alternative financing options. The Office of Financial Aid administers and distributes funds from federal, state, institutional and private fund sources. One-on-one appointments are available to students, their parents, faculty and staff. Financial aid funds are applied first to the student's university bill. Refunds are generated when financial aid exceeds university charges.

The Office of Financial Aid offers four counseling and information centers: one on the Academic Campus at 901 W. Franklin St., and three at the VCU Medical Center for the School of Dentistry in the Lyons Building, School of Medicine in Sanger Hall, and schools of Allied Health Professions, Nursing and Pharmacy also located in Sanger Hall.

For more detailed information visit the Office of Financial Aid Web site at <http://www.vcu.edu/enroll/finaid>.

The Office of Financial Aid also can be contacted by e-mail at faidmail@vcu.edu.

Student Accounting Department

Roberta Fife
Director

The Student Accounting Department, under the Division of Student Affairs and Enrollment Services is located at 827 W. Franklin St. The Student Accounting Department is responsible for the assessment, billing and collection of tuition, room, board and other university fees. The department also bills third party payers for VCU charges and issues refunds to eligible students.

For more information regarding policies and procedures, refer to the Web site at <http://www.vcu.edu/enroll/sa>.

Fees and expenses

Students must pay all applicable tuition and fees when due, as described in this section. Students who fail to pay these charges on time may be assessed a late payment fee. The university reserves the right to revise or alter all tuition and fees, regulations pertaining to student fees and collection procedures at any time. In addition to expenses billed by the university, students should make allowances for books, clothing, supplies, travel and other out-of-pocket costs when figuring their total yearly expenses at the university.

Student financial responsibility

Students who enroll:

- are responsible for full payment of tuition and fees generated from their registration.
- are responsible for full payment of all room, dining and other applicable miscellaneous charges.

- are responsible for keeping a current permanent mailing address on file with the Office of Records and Registration. Failure to receive an invoice because of an incorrect address does not relieve responsibility for timely payments.
- are responsible for establishing an official VCU e-mail address and reading their e-mail on a regular basis, since e-mail will be used by faculty and university offices to deliver important communications.

Tuition and fees schedule

Tuition and fees are categorized and described on the Student Accounting Web site at <http://www.vcu.edu/enroll/sa/tuition>. All charges are subject to change by decision of the Board of Visitors.

Tuition determination and student classification

Tuition is determined by the number of credit hours a student is taking, the student's residency classification, course of study and classification level. For in-state tuition benefits, the student must comply with Section 23-7.4 of the Code of Virginia. See the Appendices of this bulletin.

All applicants to VCU who wish to be considered for in-state tuition rates as Virginia residents must submit the Application for Virginia In-state Tuition Rates. The residency determination of the applicant is conveyed at the time of admission.

New and continuing students initially classified as non-Virginians for tuition purposes may request a review of the initial residency determination by contacting the residency officer in the Office of Records and Registration. This office will request that the applicant complete an Application for Change of Domicile for Virginia In-state Tuition Rates and submit documents for additional clarification. Requests and applications for

a second review should be submitted to the residency officer no later than 30 days prior to the beginning of any semester.

Students approved for a change to in-state status for tuition purposes are notified by mail with copies of their approval letters sent to the Office of Financial Aid and the Student Accounting Department. Students denied this status also are notified by mail. The denial letter informs the student of procedures for appeal of this decision.

Tuition and fees charges

Students accepted into an undergraduate degree program who accept the offer of admission must pay a nonrefundable tuition deposit (amount of deposit may vary according to program). This deposit is credited toward the tuition charge for the first semester. If the student accepts the offer, pays the fee, then decides not to enroll for the intended semester, the deposit is forfeited.

Students are classified as full time or part time based on the total number of credit hours in which they are enrolled in each semester. For tuition charges, there is no distinction between day and evening students. A student must be enrolled in at least 12 credits each semester to achieve full-time undergraduate status. An undergraduate year includes two semesters.

Full-time undergraduate students are charged a flat tuition fee per semester. An undergraduate student enrolled for more than 18 credit hours during any semester will be charged a course overload fee on a per-credit-hour basis above the full-time tuition rate. The overload fee will not apply to students in first professional programs. Part-time undergraduate students, those enrolled in less than 12 credits, are charged tuition on a per-credit basis. Students classified as Virginia residents pay lower tuition than out-of-state students.

In addition to tuition, students must pay the mandatory fees described in this section.

Special students who hold bachelor's degrees are classified as DHG (degree-holder graduate) if they enroll in one or more graduate courses. DHG students are charged by the level of the course unless they enroll in nine or more credits, at which point they are charged at the full-time graduate rate. Special students who hold undergraduate degrees are classified as DHU (degree-holder

undergraduate) if they enroll in all undergraduate courses. DHU students who enroll in 12 or more credits are charged at the full-time undergraduate rate. If they make changes to their course enrollment by the end of the add/drop week, their classification and charges change in accordance with these guidelines.

University fee

This fee is used by the university to support student facilities, campus development, intercollegiate athletics and other programs. Full-time students pay a flat-rate university fee each semester. Part-time students pay this fee on a per-credit basis.

Student activity fee

This fee is used to support social, cultural and other student activities on the Academic Campus. These activities include concerts, plays, student organizations and publications.

Full-time students on the Academic Campus pay a flat-rate student activity fee, while part-time students on the same campus pay this fee on a per-credit basis. Students on the MCV Campus are not charged this fee.

Student Government Association fee

This fee is used to support social, cultural and other student activities on the MCV Campus. Academic Campus students are not charged this fee.

Student health fee

All full-time students on both campuses must pay the student health fee. Part-time students may participate in the University Student Health Services on an elective basis by paying the student health fee. The University Student Health Services offers unlimited office visits for acute and chronic ailments, after-hours emergency room referrals and laboratory tests, among other services.

Technology fee

The technology fee is charged to all undergraduate, graduate and professional students in all programs. Full-time students pay a flat rate. Part-time students pay a per-credit-hour rate. The fee is used to fund improved access and assistance with information technology.

Capital outlay fee

The capital outlay fee is charged to all full-time and part-time non-Virginia resident, on-campus students. Full-time students pay a flat rate. Part-time students pay a per-credit-hour rate. The fee is mandated by the General Assembly with revenues used to offset General Obligation Bond debt.

Off-campus fees

The university fee, the student activity fee, the Student Government Association fee (except School of Social Work) and the student health fee are not charged to students taking off-campus classes.

Special fees charges

Because of specialized programs, various schools and departments may charge each student additional fees to cover special materials, equipment breakage and other costs. For specific information about special fees, refer to the Student Accounting Department Web site or to the specific school or department section in this bulletin.

Room fees

With a letter of acceptance, the student also receives a room reservation application, which is in the Handbook for Accepted Students. If residence hall space is desired, the student fills out the application and returns it with a \$250 room rental prepayment. The student is notified of his or her contract for placement in a residence hall or of being placed on a waiting list for residence hall space. The \$250 room rent prepayment is credited toward the total amount due for room rent. This prepayment is refundable only if the contract is canceled in writing before June 30 for the fall semester or before Jan. 3 for new students entering in the spring semester. After these dates, housing contract prepayments are not refundable. Please address correspondence about housing contracts to University Housing Office, 711 W. Main St., Room 159, P.O. Box 842517, Richmond, VA 23284-2517.

Room rent

Room rent is payable at the time tuition and other fees are due. Contracts for residence hall space are for the entire academic

year, except in cases involving contracts initiated during the spring semester or summer session or for students who will graduate at the end of the fall semester. Students are not released from their contracts between semesters. Only one semester's room rent is due prior to each semester.

Students may refer to the Student Accounting Department Web site for exact room and dining charges. In addition, students are responsible for the cost of damages to student rooms, furnishings and common living areas.

University dining plans

Please address all dining services concerns and questions to University Dining Services, 1111 W. Broad St., Room 128, P.O. Box 980247, Richmond, VA 23298-0247; telephone (804) 828-1148, e-mail dining@vcu.edu or visit the Dining Services Web site at <http://www.bsv.vcu.edu/vcufood>.

Dining Services offers seven residential plans for students and resident assistants living in University housing and an additional five nonresidential plans for total off-campus flexibility to graduate and pharmacy students and students and resident assistants residing in university apartments or off campus. These meal plans fall into two categories: Block Plans offering a group of meals to be used at any residential restaurant at any time throughout the semester and Meal Plans offering a guaranteed weekly number of meals to be used at any residential restaurant throughout the semester.

Residential plans

- Unlimited Meal Plan
- 19 Meal Plan + 100 Dining Dollars
- 19 Meal Plan
- 15 Meal Plan + 175 Dining Dollars
- 300 Block Plan + 100 Dining Dollars
- 300 Block Plan
- 250 Block Plan + 175 Dining Dollars

Nonresidential plans

- 10 Meal Plan + 200 Dining Dollars
- 160 Block Plan + 200 Dining Dollars
- 5 Meal Plan + 75 Dining Dollars

- 25 Block Plan + 75 Dining Dollars
- 5 Block Plan + 150 Dining Dollars

Dining Dollars is a declining dollar account allowing students to make tax-free purchases at any VCU Dining Services retail or residential restaurant. The tax advantage provides a 9.5 percent savings on each dining purchase.

A residential restaurant is an all-inclusive meal location accepting meal and block plan meals in addition to Dining Dollars, cash, RamBucks and credit cards. These include Larrick at the VCU Medical Center; and Shafer Court Dining Center on the Academic Campus.

A Retail Restaurant is an a la carte location accepting Dining Dollars, in addition to cash, RamBucks and credit cards (Commons Café, Commons Convenience, Jammin' Java, Park Place, JAVA 901, Bookmark Bistro (on the Academic Campus); and Alpine Bagel, Hunton's Café Express and Skull & Beans on the MCV Campus).

Students who have enough financial aid to cover their charges will not be sent bills. Students with current charges of \$100 or greater are eligible to participate in the university's Installment Payment Plan, offered during the fall and spring semesters. The Installment Payment Plan distributes the cost of tuition, fees, room and dining, and communications fee for the semester into four equal installments. The fee per semester is \$25, paid with the first installment. An application and information about how to sign up for the payment plan will be included with the bill.

Student billing

The Student Accounting Department issues bills to students showing charges for the following fees: tuition, student activity fee, Student Government Association fee, technology fee, university fee, capital outlay fee, private music lessons, school major fees, special course fees, course materials fees, dental kits, disability insurance, room rent, dining fees, communication fees, student health fee and study abroad fees.

Tuition and fees for preregistered students, along with charges for room and dining plans where applicable, are due by the official start of each semester. All other students will be billed after the registration period and should pay upon receipt of the invoice.

Drop vs. withdraw

Drop – charges are removed to indicate that the student never attended the class. The student is not eligible to receive financial aid, and any financial aid already credited to the student's account based on the original course registration will be removed from the student's account and may create a balance due to the university.

Withdraw – results in the academic grade of "W." Charges are assessed and adjusted according to the University Refund Policy. Students may owe a balance to the university.

University refund policy

The official university tuition and fees refund policy applicable only for the fall and spring semesters (excluding short courses) is outlined in the table that follows. Refunds are calculated on a per-credit-hour basis, disregarding the full-time cap amounts (see "student refund" in chart below). Students who are enrolled full time and withdraw from courses may not receive a refund.

Withdrawal/ drop period	Student refund	Retained by university
Drop prior to the first day of classes	100% tuition and fees	0%
Drop/withdraw first week of class	100% tuition and fees	0%
Withdraw second week of class	80% tuition and university fee	20% tuition and university fee 100% of all other fees
Withdraw third week of class	60% tuition and university fee	40% tuition and university fee 100% of all other fees
Withdraw fourth week of class	40% tuition and university fee	60% tuition and university fee 100% of all other fees
Withdraw after fourth week of class	0%	100% all fees

This table pertains to both complete withdrawals and reduced course loads for fall and spring semesters only.

Students in off-campus classes are subject to the same refund policy as all other university students if the class is scheduled on the regular semester schedule. If the off-campus class is shorter or longer than the academic

semester, the refund dates are adjusted accordingly at the request of the Off-campus Programs Office.

The refund policy and deadlines of the English Language Program are different from the university's refund policy for academic classes. Details of the policy may be obtained from the English Language Program Office in the Office of International Education.

A full refund for holiday intersession will be granted if the course is dropped on the day of the first class meeting. Partial refunds are not granted.

A full refund for summer tuition and applicable fees will be granted if the course is dropped no later than the day following the first day of a given class. (This deadline also is applicable if the class does not meet on two consecutive days.) Students reducing their academic course load to fewer than full time (12 credits for undergraduates and nine credits for graduates) before the end of the last day to drop a course will be entitled to a refund of tuition and applicable fees reflecting the reduced course load. No refund of tuition and fees is given for withdrawals during the summer semester. This same refund policy also applies to short courses offered during the fall and spring semesters.

Students who are financial aid recipients and withdraw from all courses prior to completing 60 percent of the semester are subject to the Federal Return of Title IV Funds Policy. For more details see Federal Financial Aid Refund Policy.

Refunds will be computed based on the actual withdrawal date certified by the Office of Records and Registration. Refunds will not be made to students who do not attend classes and have not completed the required withdrawal procedure. Refund processing may take approximately two weeks. Exceptions to this refund policy are made only in rare instances. Written application for an exception must be filed in the Student Accounting Department to the university's Refund Waiver Appeals Committee within three years.

Students will not be entitled to a refund of room fees:

- if they are suspended from the residence halls for disciplinary reasons.
- if they voluntarily withdraw from the university residence halls but remain registered for any course(s) at the university unless clearance is granted

through University Housing and Residence Education.

Cancellations or changes to dining plans will be accepted up to 4 p.m., Friday of the second week of classes.

Refer to the Room and Dining Contract Terms and Conditions for additional information.

Requests for refunds that are not generated from the overpayment of financial aid should be made in writing to VCU Student Accounting Department, P.O. Box 843036, Richmond, VA 23284-3036. Refund request forms are available at the Student Services Centers, 827 W. Franklin St., Room 104 or 1101 E. Marshall St., Room 1-055 and on the Web at <http://www.vcu.edu/enroll/forms>. In accordance with credit card regulations, the university will refund the credit card account with any credit balance that may result on a student's account as the outcome of a credit card payment. The remaining credit balance, if any, will be refunded to the student.

Students are responsible for paying any increase in charges that may occur after the generation of any refund.

Defense crisis tuition relief, refund and reinstatement guidelines

These guidelines apply to any operation, including a defense crisis, in which the president of the United States declares a sudden mobilization that includes members of the Virginia National Guard or the active or reserve forces of the U.S. Armed Forces who are students enrolled at VCU. Students are offered the following enrollment secession options:

1. Drop all courses before the end of the add/drop period and receive a full refund of all funds paid the university. Students will be asked to sign the drop request form with the registrar indicating that they are not receiving a financial aid refund.
2. Receive a grade of Incomplete (IM – incomplete military) in one or all courses. Students residing in university housing will be released from their

housing and dining service contracts, and will receive a prorated refund of these charges. Students who chose to take a grade of IM will not have tuition and fees reduced for these courses because credits will still be earned for the semester. Students will have 12 months from the date that they leave the university to complete the course work and earn a course grade.

This option might best meet the needs of students who have essentially completed all course work in a class for the semester, but have yet to turn in a final project, an exam or other materials. It should be agreed upon between the instructor and the student that the remaining course work can reasonably be completed during the upcoming 12-month period.

3. Accept administrative withdrawal (WM – withdrawal military) from all courses as of the effective date of the orders to active duty. If this option is elected, a full refund of all tuition, fees and prorated room/dining charges will be made. If a student received financial aid, the amount recovered to the financial aid accounts will follow Title IV guidelines.

This option might best meet the needs of students who are called to national service in the middle of a semester and have not completed 90 percent of their class requirements. This option also might best meet the needs of students who are leaving the university during the first week of class and received a financial aid refund check or direct deposit as a result of their financial aid.

Leaving the university

To initiate this process, the student must provide the university registrar with a copy of his or her active duty orders in addition to a printed copy of his or her course registration for that semester and indicate Option 1, 2 or 3 for each course. The university registrar will take the appropriate enrollment action, post the appropriate grades and send a copy of the orders and a copy of the student course request statement to the director of financial aid and the director of student accounting.

Returning to the university

If the student returns within one year of completing their national emergency service requirement, the student may return to the university in the same program of studies without re-applying for admission. The student should begin the re-enrollment process by writing to the director of admissions regarding their intent to re-enroll.

Outstanding charges

A student who fails to remit payments when due may be assessed a late payment fee and is denied registration for future classes until he or she has paid all amounts owed to the university. Students with balances owed the university are not issued degrees, transcripts, grades or grade reports until all charges are paid in full.

Student accounts with balances owed the university are referred to the Collection Unit. Pursuant to Section 2.2-4805 et. seq., of the Code of Virginia, and in accordance with rules and regulations promulgated by the state comptroller and attorney general of the commonwealth of Virginia, VCU will charge interest, costs and fees on all accounts past due.

Students are reminded that they are ultimately responsible for any unpaid balance on their account as a result of the Office of Financial Aid or their sponsor canceling or reducing the award. Also see Federal Financial Aid Refund Policy.

Any communication disputing an amount owed, including an instrument tendered as full satisfaction of a debt, must be submitted to the Director of Student Accounting, Student Accounting Department, P.O. Box 843036, Richmond, VA 23284.

VCU participates in the Virginia Set-off Debt Collection Act of 1981. Under the provisions of this act, a Virginia individual income tax refund is subject to the university's claim for unpaid balances of tuition and fees.

Dishonored checks

A charge of \$20 will be levied for all dishonored checks. A student who pays a past due balance with a dishonored check may be subject to having his or her current and/or future registration cancelled.

Loan repayment

Before graduation or withdrawal from the university, students may be required to attend a loan counseling exit session. Please refer to the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

Accident insurance

VCU is not responsible for accidents occurring to students in connection with class, laboratory, shop, fieldwork, athletics, student activities, travel or other activities. However, the university offers its students approved insurance, providing substantial benefits at group rates. The insurance extends for a 12-month period beginning Aug. 20, or from the beginning of the second semester to the next Aug. 20, and includes coverage for accidents, hospital, medical, surgical and other benefits for illnesses. Married students may wish to enroll their spouses and children. The university recommends, but does not require, that all students enroll in the approved student group insurance. For further information, contact University Student Health Services.

Financial aid

VCU uses all available funds to help students gain access to a college education. Eligibility for financial aid varies depending on a student's academic and financial circumstances. In most cases, each student will qualify for some form of financial assistance. Current information on financial aid programs, policies, procedures and links to free scholarship search services are available on the VCU Web site at <http://www.vcu.edu/enroll/finaid>.

To receive printed information, submit a written request to one of the four financial aid counseling centers listed below.

Academic Campus

Ginter House, Shafer Street Entrance
901 W. Franklin St.
P.O. Box 843026
Richmond, VA 23284-3026
(804) 828-6669
Fax (804) 827-0060
E-mail: faidmail@vcu.edu

Schools of Allied Health Professions, Nursing and Pharmacy

Sanger Hall, Room 1-055

1101 E. Marshall St.
P.O. Box 980244
Richmond, VA 23298-0244
(804) 828-9800
Fax (804) 828-2703

School of Dentistry

Lyons Building, Room 309
520 N. 12th St.
P.O. Box 980566
Richmond, VA 23298-0566
(804) 828-9953
Fax (804) 828-5288

School of Medicine

Sanger Hall, Room 1-008
1101 E. Marshall St.
P.O. Box 980565
Richmond, VA 23298-0565
(804) 828-4006
Fax (804) 828-5555

eServices – online records access

Students are encouraged to use eServices, a password-protected service for viewing VCU student records online, to check the status of their financial aid application and award package. Students also may register for classes, print bills and more. The eServices Web site is located at <https://iserver.adm.vcu.edu/students>.

E-mail – official method of communication

Students are required to obtain an official VCU student e-mail account within one week of the beginning of their first semester of enrollment. Students are responsible for reading university-related communications sent to their official VCU student e-mail account in a timely fashion. The Office of Financial Aid uses e-mail to provide financial aid information, to request documentation to support financial aid application data, and to provide financial aid application status and award information. Information on how to set up an account is available online (go to the "Academic" section of "Getting a Computer Account" at http://www.vcu.edu/it/computer_accounts.html).

Identification requirements

Students must provide picture identification, preferably a VCUCard, for in-person access to financial aid records. For the student's protection, information provided over the telephone and e-mail may be

limited if the financial aid staff member is not confident of the student's identity.

Eligibility for financial aid

Most students are eligible for some type of financial aid regardless of family financial circumstances. Basically, to receive aid from any of the federal or state student aid programs, students must:

- submit a Free Application for Federal Student Aid (FAFSA) or Renewal FAFSA designating VCU (school code 003735) to receive FAFSA results.
- demonstrate financial need, except for some loan programs.
- have a high school diploma or a General Education Development (GED) Certificate.
- be enrolled or accepted for enrollment to an eligible degree or certificate program.
- be enrolled at least half time, six or more undergraduate credit hours (exceptions possible for Pell Grants) or five or more graduate credit hours.
- be a U.S. citizen or eligible noncitizen.
- have a valid Social Security number (unless from the Republic of the Marshall Islands, the Federated States of Micronesia or the Republic of Palau).
- meet Reasonable Academic Progress (RAP) standards as defined by the VCU Office of Financial Aid (the full VCU RAP policy is available on the Web at <http://www.vcu.edu/enroll/finaid>).
- certify that federal and state financial aid will be used for educational purposes only.
- not be in default on a federal student loan and not owe money on a federal student grant.
- comply with the Selective Service registration, if required.
- not be convicted under federal or state law of sale or possession of illegal drugs.

Detailed information can be found in the federal Student Guide, available in print form from the VCU Office of Financial Aid or electronically (http://studentaid.ed.gov/students/publications/student_guide) and

on the VCU Office of Financial Aid Web site (<http://www.vcu.edu/enroll/finaid>).

Applying for financial aid

The financial aid application process for the academic year begins Jan. 1. All students are encouraged to complete and submit the Free Application for Federal Student Aid (FAFSA) as soon as possible after Jan. 1, designating VCU (school code 003735) to receive the results. In order to reduce problems, errors and omissions on the FAFSA, students are encouraged to apply electronically using FAFSA on the Web (available online at <http://www.fafsa.ed.gov>). Once the FAFSA is filed, the federal processor will send the student a Student Aid Report (SAR) or electronic SAR Acknowledgment, and also will electronically send the information to the VCU Office of Financial Aid, if VCU was listed as a school to receive the data. If additional information is needed to complete processing of the application, the VCU Office of Financial Aid will send the student a request for additional information. Responding promptly to such requests will ensure timely processing of the application. Once the review of FAFSA data has been completed, the Office of Financial Aid will send the student a Financial Aid Notification.

Priority filing dates

Certain financial aid programs, like federal grants, federal work-study and state grants, have limited funding — this means that there are more students eligible for the programs than there are funds available to award to them. Therefore, students should file the FAFSA as early as possible and reply to requests for additional information promptly to ensure consideration for this type of funding. The VCU Office of Financial Aid recommends electronically filing the FAFSA by March 1.* Students should complete the FAFSA using data from their completed tax returns. If necessary, they may use estimated tax return data in order to meet the VCU priority filing date but should be prepared to submit a copy of their completed tax returns and W2 forms to VCU as soon as possible. Students will receive their actual award letter after their FAFSA application data has been verified.

* Students who do not have access to the Web may apply using the paper FAFSA, available through VCU, high schools, colleges and most

public libraries. Those students completing a paper application should mail it to the federal processor by Feb. 1.

Applying after the priority filing date

Students can and should apply for financial aid even if they missed the priority filing date because they may still qualify for the Federal Pell Grant and Federal Direct Loans; their parents may qualify for Federal Direct PLUS Loans. If students have not applied for financial aid in a timely manner, they may want to participate in the VCU Installment Payment Plan, which budgets each semester's bill over four payments. Information about this plan can be found on the Student Accounting Department's Web site (<http://www.vcu.edu/enroll/sa/payment/ipp.html>).

Summer studies

Limited financial aid may be available during the summer semester. Students applying for the summer semester must file the FAFSA by March 1. Students interested in financial aid for the summer semester should obtain a VCU Summer Studies Schedule of Classes (available in March) for more details.

Study abroad

Financial assistance is available to eligible students enrolled in approved study abroad programs. All study abroad programs must be coordinated through the Office of International Education at (804) 828-8471. Students should work with a financial aid counselor to coordinate aid for their study abroad program. Information about financial aid and study abroad is available online at <http://www.vcu.edu/oie/ea>.

Quality assurance

To ensure that information provided on the FAFSA is accurate, a student's application may be selected for review at any time during an enrollment period, and the student will be requested to provide documentation that supports the information. By signing the FAFSA, a student (and the student's parent or spouse, if applicable) agrees to furnish such documentation. If the documentation is not provided when requested, financial aid awards will be canceled and any funds already disbursed may need to be repaid.

University bill

The Student Accounting Department sends bills for tuition, fees and other university charges to students whose financial aid will not cover their university charges. When financial aid awards (grants, scholarships and loans) are not enough to pay university charges, the remaining balance must be paid from personal funds, credit card or the VCU Installment Payment Plan. Federal work-study awards will not be deducted from university charges because those funds are paid directly to the student, based on hours worked. Any outstanding balance owed will prevent a student from registering for courses.

Financial aid appeals

Financial aid eligibility decisions are made using federal, state and institutional regulations and policies. Students may appeal their award offers if special circumstances warrant a review. Reasons for an appeal might include one of the following documented unusual circumstances:

- loss or reduction of employment earnings
- disability or death of parent or spouse
- separation or divorce
- loss or reduction of untaxed income
- losses due to a natural disaster
- unusually high educational program costs
- unusual medical expenses
- dependent and child care expenses

Any financial aid staff member can advise a student about the procedures on how to file an appeal.

Reasonable Academic Progress (RAP)

The Office of Financial Aid will review all students who have applied for financial aid to be sure that they are making RAP toward their degree/certificate. The RAP review will be conducted at least once annually (typically at the end of the spring semester, or whenever the student submits their completed FAFSA). RAP is a combination of qualitative and quantitative components and is measured by:

1. **Grade point average.** Undergraduate students must maintain at least a 2.0 GPA and graduate students a 3.0

GPA as specified by their department. Undergraduate freshman students are given a grace period where they must earn at least a 1.00 GPA by the end of their first academic year as measured after spring grades have been posted.

2. **Completion rate.** The completion rate is measured by the number of credit hours earned divided by the number of credit hours attempted. All students who need financial aid funding must successfully complete at least 67 percent of all credit hours attempted (attempted hours include incompletes, withdrawals, repetitions, progress grades, continuance grades and noncredit remedial courses).
3. **Overall progress toward degree/certificate.** Overall progress is measured by the number of credit hours attempted divided by the number of credit hours necessary to complete the degree or certificate program. Students who need financial aid funding may attempt no more than 150 percent of the hours required to complete their degree or certificate program.

Students will be alerted with warning letters, whenever possible, to provide them with notice that their financial aid may be in danger of being suspended. When students fail to meet RAP requirements, they will receive suspension letters indicating that they are ineligible to receive further financial aid. Students whose eligibility for financial aid has been suspended may submit an appeal if mitigating circumstances prevented the student from maintaining RAP. However, there is no guarantee that the appeal will be approved. Please refer to the Office of Financial Aid Web site (<http://www.vcu.edu/enroll/finaid>) for more details on RAP requirements and the RAP appeal process.

Federal Financial Aid Refund Policy

Students who receive federal Title IV grant or loan assistance and withdraw from VCU before completing 60 percent of the semester (as measured in calendar days) must have their eligibility recalculated based on the federal Return of Title IV Funds formula. This federal formula specifies that a student's financial aid eligibility must be recalculated based on the aid the student has "earned" (based on the number of days that the student was enrolled or attending VCU

prior to withdrawal). Any unearned aid (for the period of enrollment that the student did not complete from the date of withdrawal to the end of the semester) must be returned to the appropriate Title IV programs from which the student was awarded.

For VCU students who withdraw prior to completing 60 percent of the semester, they will have to return or repay all or a portion of the aid funds that had been disbursed to their VCU account. As a result, students who withdraw prior to completing 60 percent of the semester may be responsible for all or a portion of their university bill that was previously paid by financial aid sources. Examples are available online (go to <http://www.vcu.edu/enroll/finaid/links> and click on "Financial aid implications if you withdraw from VCU").

Loans, grants and work-study

There are three basic types of financial aid: loans, grants and work-study. Each type has different features and advantages.

Loans

In terms of total dollars available, long-term loan programs provide the most dollars. A loan is money borrowed, which must be repaid at a later time. In most cases, the student is the borrower and repays the loan once he or she is no longer pursuing a degree or certification at least at the half-time enrollment level. There is a loan program where the parent is the borrower and begins repaying the loan while the student is still enrolled. All educational loans carry competitive interest rates and terms. Some include interest benefits, meaning the federal government pays the interest on the loan while the student is enrolled. Student loan repayment generally begins after the student is no longer enrolled half time. Multiple repayment plans provide the borrower with flexible repayment options. Selected loan programs include:

- Federal Direct Loan (subsidized and unsubsidized)
- Federal Perkins Loan
- Health Professions Student Loan
- Loan for Disadvantaged Students
- Nursing Student Loan
- Primary Care Loan
- Federal Direct PLUS Loan

Grants

Grants are awarded without any expectation of repayment. The total dollar amount of available aid in the form of grants is less than that of total dollar amount of loans. Most grants are reserved for students with the greatest financial need. Scholarships based on merit are considered a member of this grant category. Selected grant programs include:

Undergraduate programs

- Federal Pell Grant
- Commonwealth Award
- Virginia Guaranteed Assistance Program
- Federal Supplemental Educational Opportunity Grant
- College Scholarship Assistance Program
- VCU Scholarships
- Honors Scholarships
- Departmental Scholarships

Health profession programs

- Scholarships for Disadvantaged Students
- State Dental Practice Scholarships
- Virginia Medical Scholarships
- General Assembly Nursing Scholarships
- Departmental Scholarships

Work-study

Work-study is a form of financial aid that pays wages for work performed through employment. Work-study positions are located on campus and in approved locations off campus. Job listings are posted to the Career Center's Web site (<http://www.students.vcu.edu/careers>).

Veteran and reservist educational benefits

Available veteran and reservist educational assistance programs include:

- Montgomery GI Bill – Active Duty (Chapter 30)
- Vocational Rehabilitation (Voc Rehab, Chapter 31)
- Veterans Education Assistance Program (VEAP, Chapter 32)
- Survivors' and Dependents Educational Assistance Program (DEA, Chapter 35)
- Montgomery GI Bill – Selected Reserves (Chapter 1606)
- Tutorial Assistance Program
- VA Work-Study Program

- Virginia War Orphans Education Program
- Diplomatic Security and Antiterrorism Assistance

Detailed information about eligibility for these programs is available on the Web (<http://www.vcu.edu/enroll/finaid>). To obtain printed material, contact:

Veterans Affairs Office

James M. Chambliss, Certifying Official
Office of Records and Registration
Division of Student Affairs and Enrollment Services
827 W. Franklin St., P.O. Box 842520
Richmond, VA 23284-2520
(804) 828-6166; Fax (804) 828-8121
E-mail: jmchambl@vcu.edu

Eligible veterans must comply with the following requirements to receive educational benefits as students:

1. The veteran must apply or be accepted into a degree- or certificate-seeking program.
2. The veteran must request certification after registering for courses each semester and each summer session from the Veterans Affairs Office.
3. The veteran is eligible to use benefits for only those courses taken toward a degree or certificate program.
4. The veteran is not eligible to use benefits for courses taken on an audit basis. If repeating a course or taking a course with no credits, the Veterans Affairs Office must be notified.
5. The veteran is responsible for ensuring that transcripts are evaluated for transfer credits to be accepted by VCU. Students must submit this information to the Veterans Affairs Office for transmittal to the Veteran's Administration Regional Office.
6. The veteran must notify the Veterans Affairs Office if planning to drop or withdraw from classes, or stops attending VCU.

Virginia War Orphans Education Program

The Virginia War Orphans Education Program provides educational assistance

for children of certain veterans or service personnel. Applications are available at the VCU Veterans Affairs Office. Students should begin the application process at least four months before beginning studies at VCU.

Eligibility for this assistance is contingent upon the following:

1. the applicant must be no less than 16 and no more than 25 years old,
2. one of the applicant's parents must have served in the U.S. Armed Forces and must be permanently or totally disabled due to war or other armed conflict, or
3. one of the applicant's parents died as a result of war or other armed conflict, or
4. one of the applicant's parents is listed as a prisoner of war or missing in action, or
5. the applicant's parent, on which eligibility is based, has been a resident of Virginia at the time of entry into active military duty, or
6. the applicant's parent, on which eligibility is based, has been a resident of Virginia for at least 10 consecutive years immediately before date of application, or
7. the surviving parent has been a resident of Virginia for at least 10 years prior to marrying the deceased parent, or must have been a resident of Virginia for at least 10 consecutive years immediately prior to the date on which the application was submitted by or on behalf of such child for admission to any educational or training institution in Virginia.

Those eligible for the Virginia War Orphans Education Program are entitled to a tuition-free education at state-supported educational or training institutions on an annual basis. (Summer school also may be included in the annual certification of students.) Eligible students can use this benefit to pursue any vocational, technical, undergraduate or graduate program of instruction. Generally, programs listed in the academic catalogues of state-supported institutions are acceptable provided they have a clearly defined educational objective, i.e., certificate, diploma or degree.

Academic Regulations and General Degree Requirements

Office of Academic Affairs
901 W. Franklin St. • P.O. Box 842527
Richmond, VA 23284-2527
(804) 828-1345 • Fax (804) 828-1887
<http://www.vcu.edu/provost>

Office of Undergraduate Advising
900 Park Ave. • P.O. Box 842002
Richmond, VA 23284-2002
(804) 828-2333 • Fax (804) 828-6048
<http://www.has.vcu.edu/advising>

Office of Records and Registration
827 W. Franklin St. • P.O. Box 842520
Richmond, VA 23284-2520
(804) 828-1349 • Fax (804) 828-8121
<http://www.vcu.edu/enroll/rar>

Advising program

Students are responsible for knowing and fulfilling all general and specific degree requirements as described in this section.

Individual student advising is an integral part of the VCU student's academic program. Each degree-seeking student is assigned a faculty adviser who is available for academic and career advising. Special nondegree-seeking students should contact the College of Humanities and Sciences' Office of Undergraduate Advising at (804) 828-2333. For definitions of degree- and nondegree-seeking students, refer to the "Admission to the University" chapter of this bulletin.

Additional assistance for all students is available from the Counseling Center and the University Career Center.

Address

Every VCU student is responsible for keeping a **current mailing address** on file with the Office of Records and Registration. Please consult eServices on the Web.

Mail returned to VCU by the U.S. Post Office because of an incorrect address may result in a registration hold on a student's record until the correct address is provided.

Students must submit in writing any change of address to the Office of Records and Registration, 827 W. Franklin St., P.O. Box 842520, Richmond, VA 23284-2520 or the Student Services Center in Founders Hall or Sanger Hall.

All official mailings are sent to the permanent address on file in the Office of Records and Registration.

E-mail is considered an official method for communication at VCU because it delivers information in a convenient, timely, cost effective and environmentally aware manner. Mail sent to the VCU e-mail address may include notification of university-related actions, including disciplinary action. Students who use e-mail addresses other than their required name@vcu.edu e-mail address also must frequently check their name@vcu.edu address for official messages from the university or have their official VCU e-mail address forwarded to the service they regularly use.

Attendance regulations

The instructional programs at VCU are based upon a series of class meetings involving lectures, discussions, field experiences, special readings, and reporting assignments. Therefore, it is important for each student to be in attendance on a regular basis. A student who misses a class session is responsible for completing all material covered or assignments made during the absence.

Instructors must clearly inform the student in the syllabus or in writing of the attendance requirements for each course and the corresponding consequences of poor attendance. Though the attendance requirements may vary widely from one course to another, students must abide by these requirements. Students cannot enroll in two courses that meet concurrently without written approval from the chair of each department involved.

Students having attendance problems should contact the instructor to explain the

reasons for nonattendance and to discuss the feasibility of continuing in the course. If the student has fallen so far behind that the successful completion of the course is impossible, the student should withdraw from the course before the end of the first 10 weeks of classes.

If the student continues to miss class and does not officially withdraw from the course, the instructor may withdraw the student for nonattendance with a mark of "W" before the end of the first 10 weeks of classes, or may assign an academic grade at the end. Withdrawals are not permitted after the end of the first 10 weeks of classes. For classes that do not conform to the semester calendar, the final withdrawal date occurs when half of the course has been completed. Withdrawal dates for summer session classes are published in the summer Schedule of Classes.

Religious observances

It is the policy of VCU to accord students, on an individual basis, the opportunity to observe their traditional religious holidays. Students desiring to observe a religious holiday of special importance must provide advance written notification to each instructor by the end of the second week of classes. On these dates, instructors are encouraged to avoid scheduling one-time only activities that cannot be replicated. Through such strategies as providing alternative assignments or examinations, granting permission for audio or video recordings or the use of the Internet, faculty members are expected to make reasonable academic accommodations for students who are absent because of religious observance.

Student conduct in the classroom

The instructional program at VCU is based upon the premise that students enrolled in a class are entitled to receive instruction free from interference by other students. Accordingly, in classrooms,

laboratories, studios and other learning areas, students are expected to conduct themselves in an orderly and cooperative manner so that the faculty member can proceed with customary instruction. Faculty members (including graduate teaching assistants) may set reasonable standards for classroom behavior in order to meet these objectives. If a student believes that the behavior of another student is disruptive, the instructor should be informed.

If a faculty member believes that a student's behavior is disrupting the class and interfering with normal instruction, the faculty member may direct the student to leave the class for the remainder of the class period. In such circumstances, the faculty member is the sole judge that the student's behavior is sufficiently disruptive to warrant a temporary dismissal from the classroom. Disruptive behavior on the part of the student may result in the filing of formal charges under the University's Rules and Procedures document.

Classification of students

Academic programs

Full-time and part-time degree-seeking students, but not nondegree-seeking students, are classified by credits earned as follows:

Freshmen	1 to 23 credits
Sophomores	24 to 53 credits
Juniors	54 to 84 credits
Seniors	85 credits and more

Health science programs

Classification is determined by curriculum requirements for individual programs.

Degree options

Major

A major is a student's principal field of study. Majors are in specific disciplines or are interdisciplinary groupings of courses that are designed to make a coherent whole. The department or program administering the major specifies required and optional courses. VCU encourages students to select a major before they reach junior standing. Some majors require course sequences that necessitate earlier selection of the major in order to earn a baccalaureate degree within four years of full-time study.

The major becomes official only after the OnTrack@VCU Office has received the Change of Major/Minor Form signed by the appropriate school dean, department chair or program head. The major will appear on the student's permanent record at the time of graduation.

The following minimum requirements are needed for completion of a major:

- At least 30 credits in the major area, at least half of which are at the 300 or 400 level.
- A GPA of 2.0 or higher in courses in the student's major presented for graduation, unless the major specifies a higher GPA. Only credits taken at VCU are computed in the GPA.
- Any special conditions stipulated by the major.

Undergraduate major codes

Abbrev. Major

AAS	African American Studies
ACC	Accounting
AEN	Art Education
AFO	Art Foundation
ANT	Anthropology
ARH	Art History
BAM	Business Administration and Management
BFO	Business Foundation
BIO	Biology
BME	Biomedical Engineering
BNF	Bioinformatics
BSW	Social Work
CDE	Communication Arts and Design
CHE	Chemistry
CLS	Clinical Laboratory Sciences
CRA	Crafts
CRE	Chemical Engineering
CRJ	Criminal Justice
CRS	Clinical Radiation Sciences
CSC	Computer Science
DAN	Dance/Choreography
DEH	Dental Hygiene
ECO	Economics
ELE	Electrical Engineering
ENG	English
ENS	Environmental Studies
FDE	Fashion
FIN	Finance
FLF	Foreign Languages/French
FLG	Foreign Languages/German
FLS	Foreign Languages/Spanish
FNT	Financial Technology
FOS	Forensic Science
HIS	History
HPX	Health, Physical Education and Exercise Science
HRI	Human Resource Management/Industrial Relations

HXA	Health, Physical Education and Exercise Science/Athletic Training
IDE	Interior Design
INS	Interdisciplinary Studies
INT	International Studies
ISY	Information Systems
MAC	Mass Communications
MCE	Mechanical Engineering
MCL	Mass Communications – Lower Division
MKT	Marketing
MSA	Mathematical Sciences/Applied Mathematics
MSM	Mathematical Sciences/Mathematics
MSO	Mathematical Sciences/Operations Research
MSP	Mathematical Sciences/Secondary Teacher Preparation
MSS	Mathematical Sciences/Statistics
MUA	Music – Performance
MUB	Music
MUC	Music – Composition
MUE	Music – Education
MUF	Music Foundation
NRN	Nursing – R.N. to B.S. Completion
NUR	Nursing
PAP	Painting and Printmaking
PCL	Pre-clinical Laboratory Sciences
PDH	Pre-dental Hygiene
PHF	Photography and Film
PHI	Philosophy
PHY	Physics
PNR	Pre-nursing
POC	Pre-occupational Therapy
POS	Political Science
PPH	Pre-pharmacy
PRA	Pre-radiation Sciences
PSY	Psychology
REU	Real Estate and Urban Land Development
RSM	Recreation, Parks and Sport Management
RST	Religious Studies
SCI	Science
SCU	Sculpture
SLW	Social Work
SOC	Sociology
TED	Theatre Education
THE	Theatre
UEG	Undeclared – Engineering
UHS	Undeclared – Humanities and Sciences
USG	Urban Studies and Geography

Change of major

VCU encourages students to select a major before they reach junior standing. Some majors require course sequences that necessitate earlier selection of the major in order to earn a baccalaureate degree within four years of full-time study. Students who wish to change their majors must file a Change of Major/Minor Form. These forms are available at the Student Services Center in Founders Hall or on the Web, <http://www.vcu.edu/enroll/forms>. The change of major becomes official after the OnTrack@VCU Office has received the form signed by the appropriate school dean, department chair or program

head. A change of major for the current semester cannot occur after the “add-drop” period. Majors may be changed for the current semester only through the first week of classes. Changes processed after the first week are effective for the following fall or spring semester. Changes processed during the summer sessions are effective for the following fall semester. Students must be enrolled in the semester that a change of major, change of double major (see “Degree Options” in this chapter), or a concentration within a major, or a minor is scheduled to take effect. Changes that are processed after the add/drop period will not become effective unless the student is enrolled in the semester immediately following the requested change.

Before initiating a change of major, students should carefully review the requirements and prerequisites of the program they wish to enter. In certain programs — including those in the schools of the Arts, Business, Education, Mass Communications and in interdisciplinary studies — a candidate must fulfill additional requirements before being accepted as a degree-seeking student.

Students currently enrolled in an MCV Campus program who wish to change to a curriculum on the Academic Campus must file a Change of Major/Minor Form. Such students are subject to the continuance policy of the Academic Campus after the major has been changed. Students currently enrolled in an MCV Campus program who wish to change to another MCV Campus curriculum must go through the admission process outlined in the “Admission to the University” chapter of this bulletin.

Credits previously earned at VCU or at another university may or may not be applicable to the new major.

Double major

A double major is the concurrent fulfillment of the requirements of two majors. To earn a degree with two majors, the student must complete the courses required in each major, any collateral/prerequisite courses required for both majors, and the General Education requirements of the primary major.

The primary major is the major that appears on the transcript as the degree awarded and the second major will appear as an accompanying note. One diploma is awarded and both majors will appear on the student’s academic record.

To initiate a double major, a student should obtain the Change of Major/Minor Form from the Student Services Center in Founders Hall or on the Web at <http://www.vcu.edu/enroll/forms>. The double major becomes official only after the OnTrack@VCU Office has received the Change of Major/Minor Form signed by the appropriate school dean, department chair or program head.

Second baccalaureate degree

A student who already has earned a baccalaureate degree from VCU or another institution and wishes to earn a second baccalaureate degree at VCU must complete and submit an Application for Undergraduate Admission to the Office of Undergraduate Admissions.

Accepted students are referred to the dean’s office of the school offering their intended major. The dean’s office evaluates the student’s academic record and prepares a statement of advanced standing that lists transferable credits to the second degree program.

Students seeking a second undergraduate degree must earn, at VCU and after acceptance into the second baccalaureate degree program, a minimum of 30 additional credits applicable to the second degree program. Students also must satisfy any supplementary requirements of the department or school granting the degree.

Dual degrees

Dual degrees are the concurrent fulfillment of the requirements of two majors and two degrees. To earn dual degrees, the student must fulfill all the requirements of the degree programs in both majors. The student must complete an additional 25 percent of hours above the minimum hour requirement of the major requiring the most credits (refer to the section “Last 25 Percent Rule”). Two diplomas are awarded and both degrees will appear on the student’s academic record.

Minor

A minor is a set of courses analogous to and named for an existing major or discipline, or an interdisciplinary grouping of courses not represented by a major. Although a minor is not required for completion of most degree programs, a student may elect an approved minor. Minors require a minimum of 18 credits, with a normal maximum of 21 credits. At least half of the credits in a minor must be in 300- or 400-level courses, unless a greater number is specified. Students must achieve a 2.0 or higher GPA in designated coursework in order to earn the minor. Only credits taken at VCU are computed in the GPA. The department or program administering the minor specifies required and optional courses. The minor may be used to fulfill career needs or to facilitate in-depth investigation in a discipline of secondary interest to the student.

A student who wishes to pursue a minor must complete a Change of Major/Minor Form. The Change of Major/Minor Form may be obtained from the Student Services Center in Founders Hall or on the Web at <http://www.vcu.edu/enroll/forms>. The minor becomes official only after the OnTrack@VCU Office has received the form signed by the appropriate school dean, department chair or program head. A minor will appear on the student’s permanent record at the time of graduation if the student has completed all requirements for the minor and has submitted a Graduation with Minor Application Form with the application for graduation. All courses in the minor must be completed before graduation with a bachelor’s degree. Forms are available at the Student Services Center in Founders Hall or in Sanger Hall, and are available via links on the VCU home page.

Undergraduate minor codes

Abbrev. Minor

AAS	African American Studies
AFS	Area/African Studies
ALA	Area/Latin American Studies
AME	Area/Middle Eastern Studies
AMS	American Studies
ANS	Area/Asian Studies
ANT	Anthropology
ARE	Area/Russian and Eastern European Studies
ARH	Art History
AWE	Area/Western European Studies
BIO	Biology
CHE	Chemistry

CRA	Crafts
CRE	Chemical Engineering
CRJ	Criminal Justice
CSC	Computer Science
CTH	Catholic Studies
DAN	Dance/Choreography
EBU	E-business
ECE	Electrical Engineering/Computer Engineering
ECM	Electrical Engineering/Communications
ECN	Electrical Engineering/Control
ECO	Economics
EMF	Electrical Engineering/Microelectronic Fabrication
ENG	English
ENS	Environmental Studies
ESP	Electrical Engineering/Signal Processing
FAM	Fashion Merchandising
FRE	French
FSE	Foundations of Special Education
GAP	Global Studies/The Arts in Global Perspective
GBU	General Business
GEO	Geography
GER	German
GHP	Global Studies/Health in Global Perspective
GIG	Global Studies/International Institutions and Globalization
GIR	Global Studies/International Relations
GSI	Global Studies/Social Relations in International Perspective
GSJ	Global Studies/International Social Justice Studies
HIS	History
HRM	Human Resource Management
ITA	Italian
JUS	Judaic Studies
LRS	Latin and Roman Studies
MAS	Mathematical Sciences
MCE	Mechanical Engineering
MKT	Marketing
MST	Media Studies
MUS	Music
NAS	Native American Studies
PAP	Painting and Printmaking
PHI	Philosophy
PHL	Philosophy of Law
PHY	Physics
PMA	Public Management
POS	Political Science
PSY	Psychology
RSM	Recreation, Parks and Sport Management
RST	Religious Studies
SCU	Sculpture
SOC	Sociology
SOW	Social Welfare
SPA	Spanish
STA	Statistics
URS	Urban Studies
WRT	Writing
WST	Women's Studies

Undergraduate certificate codes

CCN	Critical Care Nursing
IMS	International Management Studies

Post-baccalaureate undergraduate certificate codes

A baccalaureate degree is required prior to admission to these undergraduate certificate programs.

Abbrev. Description

ACC	Accounting
CSC	Computer Science
ENS	Environmental Studies
HRM	Human Resource Management
ISY	Information Systems
MKT	Marketing
RUD	Real Estate and Urban Land Development
STA	Statistics

General course information

Course numbering system

All schools and programs within VCU use the following course numbering system. All course numbers consist of three digits (XXX). The first digit relates to the course level as follows:

0XX – Noncredit courses

Courses with these numbers are offered for students to make up deficiencies in previous training or to improve certain basic skills.

1XX and 2XX – Undergraduate, lower level

Courses offered primarily for undergraduate students and may not be used for graduate credit, although graduate students may be required to register for courses at this level to gain a necessary foundation for other course work.

3XX and 4XX – Undergraduate, upper level

Courses offered for advanced undergraduates and usually constitute the major portion of specific program work leading to the baccalaureate degree. On occasion, students will be advised by their graduate advisers to enroll in 4XX courses for prerequisite work. Graduate programs can require that 400-level courses be taken, but credit in these courses cannot count toward the graduate degree or in the graduate GPA.

5XX – Introductory graduate courses

Graduate students enroll for credit in these courses through the normal graduate advising system. Departments may limit the number of 500-level courses applicable to a graduate degree program. Advanced undergraduates may enroll in these courses for credit with consent of the offering department. Credit is applicable toward only one degree unless a student is admitted to a course of study that allows a defined number of shared courses.

5XX – First year, first professional (dentistry, medicine, pharmacy and physical therapy) courses

Normally open to students enrolled in the D.D.S., D.P.T., M.D. and Pharm.D. programs. Certain courses

of this group may be designated by the department and approved by the University Graduate Council for graduate credit.

6XX, 7XX and 8XX – Graduate courses

Graduate students enroll for credit in these courses through the normal graduate advising system. Credit is applicable toward only one degree unless a student is admitted to a course of study that allows a defined number of shared courses.

6XX and 7XX – Professional graduate courses

6XX Second year, first professional (dentistry, medicine, pharmacy and physical therapy [second and third year]) courses normally open only to students enrolled in the D.D.S., D.P.T., M.D. and Pharm.D. programs. Certain courses of this group may be designated by the department and approved by the Graduate Council for graduate credit.

7XX Third and fourth year, first professional (dentistry, medicine and pharmacy) courses normally open only to students enrolled in the D.D.S., M.D. and Pharm.D. programs. Certain courses of this group may be designated by the department and approved by the Graduate Council for graduate credit.

Course interpretation

A single number listing for a course, such as HIST 101, indicates it is a one-semester course and may be offered each semester or only one semester each year.

Courses listed with a double number, such as HIST 201, 202, are designated as semester courses. They consist of two one-semester courses either of which may be taken without the other.

Courses listed with a double number, such as CHEM 101-102, are designated as a continuous course. They consist of two one-semester courses, the first of which can be taken without the second, but the second of which cannot be taken without the successful completion of the first.

Course abbreviations ending in “Z” denote credit-bearing laboratories.

The university reserves the right to withdraw any course or program.

Course abbreviations

Abbrev. Description

ACCT	Accounting
ADLT	Adult Education
ADMS	Administration and Supervision
AFAM	African American Studies
ALHP	Allied Health Professions
AMST	American Studies
ANAT	Anatomy
ANTH	Anthropology
APPM	Applied Music
ARTE	Art Education
ARTF	Art Foundation

ARTH	Art History	HPEX	Health, Physical Education and Exercise Science	RPSL	Recreation, Parks and Sport Leadership
ARTS	Arts	HPEZ	Health, Physical Education and Exercise Science Laboratory	RPSM	Recreation, Parks and Sport Management
BIOC	Biochemistry and Molecular Biophysics	HUMS	Humanities and Sciences	RPSZ	Recreation, Parks and Sport Management Laboratory
BIOL	Biology	HUSI	Humanities and Sciences Interdisciplinary	RUSS	Russian
BIOS	Biostatistics	IDDS	Interdisciplinary Developmental Disability Studies	SCPT	Sculpture
BIOZ	Biology Laboratory	IDES	Interior Design	SELD	Special Education – Learning Disabilities
BNFO	Bioinformatics	INDH	Industrial Hygiene	SLWK	Social Work
CARD	Communication Arts and Design	INFO	Information Systems	SOCS	Social Sciences
CHEM	Chemistry	INSC	Interdisciplinary Science	SOCY	Sociology
CHEZ	Chemistry Laboratory	INTL	International Studies	SPAN	Spanish
CHIN	Chinese	ITAL	Italian	SPCH	Speech
CLED	Counselor Education	LASK	Language Skills	STAT	Statistical Sciences
CLLS	Clinical Laboratory Sciences	LATN	Latin	STUA	Study Abroad Programs
CLRS	Clinical Radiation Sciences	LFSC	Life Sciences	SWKD	Social Work-Doctorate
CLRZ	Clinical Radiation Sciences Laboratory	LING	Linguistics	TEDU	Teacher Education
CMLI	Comparative Literature	MASC	Mass Communications	THEA	Theatre
CMSC	Computer Science	MATH	Mathematics and Applied Mathematics	THEZ	Theatre Laboratory
COOP	Cooperative Education	MEDC	Medicinal Chemistry	UNVS	University Studies
CRAF	Crafts	MEDI	Medicine	URSP	Urban Studies and Planning
CRJS	Criminal Justice	MGMT	Management	VCU1	Academic Affairs
CRJZ	Criminal Justice Laboratory	MHIS	Music History, Literature and Theory	WMNS	Women's Studies
DANC	Dance and Choreography	MICR	Microbiology and Immunology	WRLD	World Studies
DANZ	Dance and Choreography Laboratory	MILS	Military Science		
DENH	Dental Hygiene	MNRT	Mental Retardation		
DENS	Dental Special Topics	MRBL	Marketing and Business Law		
DESI	Design	MUED	Music Education		
DOMX	Domestic Exchange Program	MUSC	Music Composition		
EBUS	E-business	NEUS	Neurosciences		
ECON	Economics	NRSA	Nurse Anesthesia		
ECSE	Early Childhood Special Education	NRSZ	Nurse Anesthesia Laboratory		
EDUS	Educational Studies	NURS	Nursing		
EGRB	Biomedical Engineering	OCCT	Occupational Therapy		
EGRC	Chemical Engineering	OCMB	Oral and Craniofacial Molecular Biology		
EGRE	Electrical Engineering	OPER	Operations Research		
EGRM	Mechanical Engineering	ORPT	Oral Pathology		
EMOD	Emotional Disturbance	ORSG	Oral Surgery		
ENDO	Endodontics	ORTH	Orthodontics		
ENED	English/English Education	PADM	Public Administration		
ENGL	English	PAPR	Painting and Printmaking		
ENGR	Engineering	PATC	Patient Counseling		
ENGZ	Engineering Laboratory	PATH	Pathology		
ENLP	English Language Program	PCEU	Pharmaceutics		
ENV5	Environmental Studies	PEDD	Pediatric Dentistry		
ENVZ	Environmental Studies Laboratory	PERI	Periodontics		
EUCU	European Cultures	PHAR	Pharmacy		
FASH	Fashion Design and Merchandising	PHIL	Philosophy		
FELL	Fellowship	PHIS	Physiology		
FIRE	Finance, Insurance and Real Estate	PHIZ	Physiology Laboratory		
FLET	Foreign Literature in English Translation	PHTO	Photography and Film		
FMBA	Fast Track M.B.A.	PHTX	Pharmacology and Toxicology		
FREN	French	PHTY	Physical Therapy		
FRLG	Foreign Languages	PHYS	Physics		
FRSC	Forensic Science	PHYZ	Physics Laboratory		
FRSZ	Forensic Science Laboratory	PMCH	Preventive Medicine and Community Health		
GENP	General Practice	POLI	Political Science		
GEOG	Geography	PORT	Portuguese		
GEOZ	Geography Laboratory	PPAD	Public Policy and Administration		
GRAD	Graduate Studies	PROS	Prosthodontics		
GRMN	German	PSYC	Psychology		
GRTY	Gerontology	RDSS	Reading and Study Skills		
HADE	Health Administration/Executive	READ	Reading		
HADM	Health Administration	RELS	Religious Studies		
HCMG	Health Care Management	REMS	Rehabilitation and Movement Science		
HEMS	Health and Movement Sciences	RHAB	Rehabilitation Counseling		
HGEN	Human Genetics				
HIST	History				
HONR	University Honors Program				

Registration policies

Continuous enrollment

Students who withdraw from all courses after the first week of the semester are considered to have been enrolled for the semester. Students who do not attend VCU for three or more successive semesters excluding summer sessions must submit an application for readmission to the Office of Undergraduate Admissions. Students who have attended another institution and wish to return after the allowable absence period or who have been suspended since their last enrollment at VCU also **must apply for readmission**. This application must be completed and turned in before the application submission date for the semester in which the student plans to return. For health science programs, breaks in enrollment must be approved by the department.

Student load

Student load is the total number of credits for which a student is enrolled in any one semester. The semester credit is the quantitative unit by which courses are measured. A semester credit is defined as one 50-minute hour per week of lecture/recitation/computer-assisted instruction or not less than two 50-minute hours per week of laboratory work, fieldwork, internship or studio work throughout the semester. MATH 001, ENGL 001 and ENGL 002 are each equivalent to three semester credits, but none carries academic credit.

Full-time and part-time students

A student enrolled in 12 credits or more during any fall or spring semester is classified as full time. A student enrolled in 11 credits or less during any semester is classified as part time. Both full-time and part-time students may seek degrees at VCU. However, some curricula may require full-time status. For more information, see the “Categories of Student Enrollment” section in the “Admission to the University” chapter of this bulletin.

Overload

A degree-seeking undergraduate student may take no more than 19 credits per semester without special permission. This maximum load excludes holiday intersession courses. More than 19 credits per semester constitute an academic overload. Health science curricula requiring more than 19 credits per semester are exempt from this rule.

The student’s adviser and academic dean may permit a student to attempt more than 19 credits in any one semester. An Overload Approval Form may be obtained from the Student Services Center in Founders Hall or Sanger Hall.

Undergraduate special nondegree-seeking students may take no more than 11 credits per semester. Overloads for special nondegree-seeking students must be approved by the Academic Regulations Appeals Committee.

For information about credits earned concurrently at another institution, see the “Concurrent Registration” section.

Audit registration

Class size permitting, a student may register for a course on an audit basis. A student may register for audit only during add/drop and late registration periods. Auditing a course means a student enrolls in a course but does not receive academic credit upon completion of the course. A student who registers on an audit basis is subject to attendance regulations of that class and may be administratively withdrawn by an instructor for a violation of class requirements for audit students, before or after the normal 10-week withdrawal deadline. A student who registers for audit may be

subject to other course requirements at the discretion of the instructor. Audit students are charged the regular rate of tuition and fees. An audit course is counted as part of the student’s semester load for the purposes of full- or part-time enrollment status but not for the purposes of financial aid.

Concurrent registration

Students enrolled in degree programs need prior approval to take courses at other institutions to ensure credits earned concurrently at another institution are accepted for transfer at VCU. Before registration at the other institution, the student needs approval by his or her adviser, department chair and academic dean. A Request to Take Courses at Another Institution form may be obtained from the Student Services Center in Founders Hall or Sanger Hall, or on the Web at <http://www.vcu.edu/enroll/forms>. Credits taken at another institution will not be counted toward enrollment level for financial aid purposes at VCU unless these courses are part of an approved articulation agreement that allows or requires courses to be taken at another institution.

Change in registration

Once a student has registered for classes, changes in registration must be made according to the procedures listed below. Whenever a student makes any change in registration, the student should keep a copy of the new schedule as verification of the change. Changes in registration may affect current and future financial aid. Students are advised to consult with a financial aid staff member before making any changes to their enrollment status. See the “Expenses and Financial Aid” chapter of this bulletin for detailed information on financial aid.

Cancellation of registration

To cancel registration a student must notify, in writing, the Office of Records and Registration before the end of the “Add-Drop” period, or drop all classes using the Web Registration System. Refunds are issued in accordance with procedures described under the refunds section in the “Expenses and Financial Aid” chapter of this bulletin. For readmission guidelines, consult “Admission to the University” chapter of this bulletin.

Withdrawal from the university

Students enrolled in health science programs should refer to school guidelines. Withdrawal may affect continuance in health science curricula.

Students who withdraw from all classes during a semester must notify, in writing, the Office of Records and Registration before the end of the first 10 weeks of classes. Academic Campus students may withdraw from all classes using the Web Registration System by the end of the first 10 weeks of classes. Failure to notify the Office of Records and Registration of intention to withdraw from all classes or to withdraw from all classes using the Web Registration System can result in the assignment of failing grades in all or some of the courses. The final withdrawal date for classes whose meeting dates do not conform to the semester calendar is the day when half of the course has been completed. Forms to withdraw from courses are available at the Student Services Center in Founders Hall and Sanger Hall, or on the Web at <http://www.vcu.edu/enroll/forms>.

A mark of “W” for withdrawn will appear on the student’s academic record for all courses. Charges are assessed and adjusted according to the University Refund Policy. See “Refunds” in the “Expenses and Financial Aid” chapter of this bulletin.

When extraordinary circumstances require that a student requests withdrawal after the final withdrawal date, the student must petition the Academic Regulations Appeals Committee for consideration of a waiver of this academic regulation. For further information, see the “Waiver of Academic Regulations, Academic Regulations Appeals Committee.”

Academic Campus students who withdraw from all courses during a semester may attend the following semester without submitting an application for readmission. **MCV Campus students should consult their program adviser prior to any withdrawals for academic or health-related reasons.**

A student who does not attend VCU for three or more successive semesters, excluding summer sessions, must submit an application for readmission to the Office of Undergraduate Admissions. This application must be done before the application submission date for the semester in which the student plans to return. For health science programs,

breaks in enrollment must be approved by the department.

Also see “Cancellation of Registration” section.

During the add/drop period

Exact dates for add/drop periods before and during the first week of classes are listed in the Schedule of Classes booklet each semester and in the university calendar. Changes in registration during the add/drop periods can be made on the Web. Courses dropped during add/drop periods do not show on a student’s permanent record. Changes from audit to credit or credit to audit must be made before the end of the add/drop period and can be made at the Student Services Center in Founders Hall or Sanger Hall.

After the add/drop period

After the add/drop and late registration period, students may not attend classes in which they are not registered. Students cannot add a course after the add/drop period, except under unusual circumstances and with the permission of the dean of the school offering the course. The calendar published in this bulletin and on the Web lists the date when add/drop ends.

Drops are not permitted after the add/drop period has ended. However, students may withdraw from classes in accordance with prescribed procedures. To officially withdraw from a class, a student must obtain and file the appropriate form with the Office of Records and Registration, or via the Student Records Access link at <http://www.vcu.edu/vcu/current.html>.

If a student stops attending a class and fails to withdraw, a failing grade usually is given for that course. Withdrawals become a part of the student’s academic record with a mark of “W.” In classes that do not conform to the normal semester calendar, the final withdrawal date is when half of the course is completed.

For further information see the “Withdrawal from the University” section of this chapter. Students who withdraw from a course may be entitled to a refund. See “Refunds” in the “Expenses and Financial Aid” chapter of this bulletin.

Grading and marking system

Evaluation and final grade reports

Students are encouraged to discuss their progress in courses with their instructors, especially before the withdrawal deadline.

University policy requires faculty to provide students with feedback about their academic performance before the semester or class withdrawal date. Although such feedback does not always take the form of a letter grade, grades do provide a clear indication of class progress.

Grades are available via the Web through links on the VCU home page.

Grades and grade points

VCU course work is measured both in terms of quantity (semester hours of credit) and quality (grades). Grades are assigned according to a letter system. Each letter is assigned a grade-point value. These letter grades and their respective meaning and grade-point values follow:

Grade letter	Meaning	Grade-point values per semester credit
A		4.0
B		3.0
C		2.0
D		1.0
F		0.0
AU	Audit	–
CO	Continued	–
CR	Credit	–
H	Honors	–
HP	High Pass	–
I	Incomplete	–
IM	Incomplete Military	–
M	Marginal	–
NC	Administrative grade with no credit	–
NR/NG	Administrative grade assigned when no grade is submitted by the instructor	–
P	Pass	–
PR	Progress	–
W	Withdrawn	–
WM	Withdraw Military	–
RD	Repeated course; “D” grade excluded from cumulative GPA	–
RF	Repeated course; “F” grade excluded from cumulative GPA	–

Grades designated by a blank, (), in the grade-point column are not considered in the computation of grade points earned or GPA.

The above scale is known as a four-point grading system since 4.0 is the highest grade point assigned. The number of grade points earned is computed by multiplying the grade-point value for the letter grade times the number of semester credits for the

course. For example, a student who receives an “A” (four grade points) in a three-credit course earns 12 grade points.

The pound notation (#), when following a letter grade, means that letter grade is not computed in the GPA. The percent notation (%), when following a letter grade, is assigned by the Honor Council and the grade is computed in the GPA. When a grade of “F” is followed by an asterisk (*), the mark of “I” was changed to “F” for failure to complete the course work in the allotted time frame.

Mark of audit (AU)

Courses assigned the “mark of audit” grade will not be computed into the GPA.

Mark of continued (CO)

The mark of “CO” may be assigned as an interim mark for those courses that run over more than one grade reporting period. The “CO” mark indicates the course is not expected to be completed in a single semester and that the student must reregister for the course in the following semester. Upon departmental notification “CO” marks for courses not reregistered for in the following semester are converted to “F” grades. Upon completion of the course, a final grade is assigned for that semester and the previous “CO” mark(s) remain. This mark may be assigned only in courses approved for such grading.

Mark of credit (CR)

Courses assigned the “Credit” grade will not be computed into the GPA.

Mark of honors (H)

Courses assigned the “Honors” grade will not be computed into the GPA.

Mark of high pass (HP)

Courses assigned the “High Pass” grade will not be computed into the GPA.

Mark of incomplete (I)

When circumstances beyond a student’s control prevent the student from meeting course requirements at the end of the semester, the student may request the instructor to assign the mark of “I” for that semester. If in agreement with this request, the instructor fills out an Incomplete Grade

Assignment Form bearing the student's signature. The faculty member then submits the form along with the grade sheet for that course. A grade cannot be changed to "I" after the deadline for grade submissions.

The time limit for submission of all course work necessary for removal of an "I" given during the fall semester is 30 calendar days after the beginning of the following spring semester. For "I" grades given during the spring semester or summer session, all course work must be submitted within 30 days after the beginning of the following fall semester. For programs leading to the D.D.S., D.P.T., M.D. or Pharm.D. degrees, contact the appropriate dean's office for the maximum time limit allowed.

These deadlines may be extended if the student requests that extension in writing and is granted approval by the instructor and the dean of the school in which the course was offered.

Upon expiration of the deadline, an "F*" will be given automatically for any incomplete that has not been changed to a grade.

Mark of incomplete military (IM)

See "Defense Crisis Tuition Relief Refund and Re-instatement Guidelines" in the "Expenses and Financial Aid" chapter of this bulletin.

Mark of marginal (M)

Courses assigned the "Marginal" grade will not be computed into the GPA.

Mark of pass (P)

The mark of "P" may be assigned only in courses approved for such grading. This grade denotes satisfactory completion of course requirements. If course requirements are not met satisfactorily, a grade of "F" is assigned. Courses assigned the grade of "P" are not computed in the GPA. However, courses assigned the grade of "F" are computed in the GPA.

Mark of progress (PR)

A "PR" is assigned as an interim grade for certain continuing course requirements which run over the grade reporting periods. The mark of "PR" may be assigned only in courses approved for such grading.

Mark of withdrawn (W)

The mark of "W" indicates the student has officially withdrawn from the course or has been withdrawn for nonattendance. Students should refer to any school or course specific policies related to withdrawal dates. The last day to withdraw for the fall and spring semesters is the end of the 10th week of classes. Summer session students should check the summer Schedule of Classes for withdrawal dates.

For further information see the "Withdrawal from the University" section.

Mark of withdrawal military (WM)

See "Defense Crisis Tuition Relief Refund and Re-instatement Guidelines" in the "Expenses and Financial Aid" chapter of this bulletin.

Grade-point average

The GPA is computed by dividing the number of grade-points earned at VCU by the number of credits attempted at VCU. **The grades of accepted transfer courses are not included in the computation of the VCU GPA. However, transfer grades are included in the computation of laudatory graduation honors.**

Repeated courses

Because some health science programs do not allow students to repeat courses, any student planning to do so must first consult with his or her adviser, program director or department chair.

The semester credits attempted and the grade points earned for all attempts are included in computing the cumulative GPA. No matter how often a course is repeated, it may be **counted only once** as credits presented toward graduation.

Courses attempted on the Academic Campus can be repeated. All credits attempted and grade points earned are included in the computation of the cumulative GPA with one exception, which applies only to students enrolled in programs on the Academic Campus.

If a student repeats a course in which a "D" or "F" was earned on the first attempt, the student can file the Repeated Course Request Form at any time during a semester prior to the awarding of the undergraduate degree. This form **must be filed before the**

last week of classes in any semester so the cumulative GPA can be adjusted at the end of that semester.

The grade is not excluded until the request is made. If, however, more than one "D" or "F" grade is received in the same course, only one of these grades will be removed from the computation of the cumulative GPA.

Grades for all attempted courses remain on the student's permanent record. Students may not repeat courses for which they have previously received transfer credit. A repeated course may be counted only once toward credits necessary for graduation. Before repeating a course, the student should consult with the adviser or department chair.

Students who choose to repeat a course must do so **before** the awarding of their undergraduate degrees from any school or college at VCU or from any other college or university. The student's GPA at graduation **will not be affected** by repeating a course at any time after graduation.

Grade exclusion policy

This policy is applicable to former students enrolled in programs on the Academic Campus who:

1. have not enrolled at VCU for five years or more;
2. are now entering an Academic Campus program; and
3. earn at least a 2.0 GPA on the first 12 semester hours completed upon return.

Under this policy, eligible students may request that "D" and "F" grades previously earned at VCU be excluded from their total credits earned and GPA computation for the purpose of meeting scholastic continuance and graduation requirements.

All earned grades, including those excluded "D" and "F" grades, remain on the student's academic record. Excluded grades must be approved by the student's major department chair and by the dean of the school. The grade exclusion policy may be used only once during a student's enrollment at VCU and cannot be revoked by the student after approval is granted. A student who chooses to use this policy must do so before the awarding of his or her undergraduate degree.

Change of grade

A final grade may be corrected by the faculty member with proper submission of the Change of Grade Form to the chair of the department in which the course was taught. The chair will forward the form to the school's dean, who will send it to the Office of Records and Registration. For grades awarded in the fall semester, the change of grade must be submitted by the department chair no later than 30 calendar days after the beginning of the following spring semester. For grades awarded in the spring semester or summer, the change must be submitted no later than 30 days after the beginning of the following fall semester. However, a change of grade that affects the student's academic eligibility to enroll must be made during the add/drop period in the semester or summer session in which the student plans to continue attendance.

Grade review procedure

Undergraduate and graduate students of Virginia Commonwealth University have a right to appeal course grades they consider to have been arbitrarily or capriciously assigned or assigned without regard for the criteria, requirements and procedures of the course stated in the syllabus or guidelines for assignments. Grades determined by actions under authority of the VCU Honor System may not be appealed through this procedure, nor may dismissals that have occurred as a result of correctly derived course grades.

Though the faculty has the responsibility for assigning grades on the basis of academic criteria, such grade designations can sometimes raise conflicts. Thus, while affirming the importance of maintaining standards of excellence and the integrity of the teaching/learning process, the university and its faculty also recognize that, on occasion, grades may be inappropriately assigned. Should such conflicts occur, students have a right to be fairly heard. When discrepancies occur concerning the grading process, the welfare and integrity of both faculty and students are equally important. This document is in no way intended to compromise the work of the faculty.

The faculty member (or members, in the case of a jointly taught course) bear the responsibility for specifying in writing at the beginning of each class section the formal requirements of the course and the weights that will be employed in determining the final

course grade. The faculty member(s) shall apply relevant grading criteria uniformly to all members of the class.

Initiating an appeal

When a student has evidence that a final grade has not been assigned in accordance with the stated criteria, the student shall discuss it first with the faculty member. The faculty member will explain how the final grade was determined. If the student continues to feel that the grade was incorrectly assigned, a written appeal may be submitted to the chair of the department in which the course was taught. Students appealing grades assume the burden of proof. The appeal shall state and support with all available evidence the reasons why the student believes the grade should be changed. For grades awarded for the fall semester, the written appeal must be submitted no later than 14 calendar days after the beginning of the spring semester. For grades awarded for the spring semester or summer sessions, the written appeal must be submitted no later than 14 days after the first day of the fall semester. For schools that have a summer session or other less common sessions, school policies may specify other deadlines to ensure a timely appeal. Appeals submitted after the deadline will be heard only in exceptional cases, as determined by the appropriate vice president.

The grade issued by the faculty member shall remain in effect throughout the appeal procedure. With some exceptions, students shall be permitted to register for any course for which they are otherwise qualified and for which a prerequisite is successful completion of the course that is being appealed. If the committee upholds a failing grade in the prerequisite course, the student shall be dropped from the course without financial penalty. If academic suspension then results from the grade, which was upheld, it shall be carried out at the end of the grade appeal procedure. In instances in which the failing grade is in a prerequisite course in which safety or well-being of clients, patients or the public is involved, the student shall not be allowed to enroll in the subsequent courses in which safety and well-being may be at issue until and unless the appeal is resolved in the student's favor. In these cases, the student who wishes to appeal is advised to do so as soon as possible and it is the responsibility of the school to move the appeal process expeditiously.

Mediation

The chair of the department shall attempt to mediate an amicable solution within two weeks of receipt of the written appeal. If the complaint is not resolved, the chair shall forward the student's appeal to the dean (or appropriate associate/assistant dean)* of the school in which the course was taught. The chair shall also submit to the dean in writing the recommendation made to the two parties regarding the appropriateness of the grade. If the grade being appealed was assigned by the chair of the department, the dean shall assume the mediation responsibility. If the grade being appealed was assigned by the dean, the mediation responsibility will fall to the appropriate vice-president.

* In instances in which the dean of the school chooses for the appropriate associate/assistant dean to manage the grade appeal, the term "associate/assistant dean" may be substituted for the term "dean" throughout this document.

Grade Review Committee

The dean shall form a Grade Review Committee and designate the chair. The committee has the option of either raising the grade or leaving the grade unchanged. The committee shall consist of one non-voting faculty chair, two faculty members, and two students selected by the dean from disciplines whose methods and techniques of teaching and testing are as similar as possible to those of the discipline of the course in question. If the course is multidisciplinary and the instructor(s) whose grade is being appealed does not belong administratively in the school in which the course was taught, the committee shall have at least one of the faculty members from the instructor's school.

Either party may challenge the committee's membership for cause within a week of being informed of the membership. The dean shall determine if there is sufficient cause to remove the challenged committee member.

The committee shall meet initially to examine the written appeal and the department chair's recommendation. It can require the faculty member(s) to turn over to the committee grade records for that class or section and any tests, papers, and examinations by students of that class which they may possess. The committee may require the student bringing the appeal to turn over

all tests, papers, or other evaluations that have been returned and all existing evidence that an improper grade was awarded. The committee shall disregard any claim that a test or paper that has been returned to a student was unjustly graded unless that test or paper is produced for the committee's inspection.

After examining the materials, the committee may, by a majority vote, decline to hear an appeal that it judges to be patently without merit. Otherwise, the committee will authorize its chair to arrange a date for a hearing. The chair of the committee shall meet with each party prior to the hearing to explain the rules and procedures of the hearing.

Grade review hearing

Grade appeal hearings will be open, closed, or partially open (i.e., a few close associates of each party may attend) by agreement of the appealing student and the faculty member(s) and the chair of the committee of the appealing student. In case of disagreement, the committee shall decide. The chair has the option to declare closed an open or partially open hearing in cases of disruption or in order to ensure necessary confidentiality.

Both parties may have with them an adviser of their choice (who may not be an attorney), with whom they may consult but who will not participate in the questioning of witnesses and presentation of evidence unless the opposing party and chair agree to it. The committee shall ask any member of the VCU community whose testimony it deems relevant to be available at an agreed-upon time to give testimony.

Either party may present additional witnesses as long as they remain within their allotted time and their testimony is directly relevant to the course at issue. Performance in other courses is not relevant. Witnesses other than the appealing student and the faculty member(s) shall be excluded from the hearing except when testifying. A hearing shall begin with the student outlining the reasons for the appeal and all evidence that exists of an improper grade. The faculty member(s) shall then explain the criteria used for the original grade assigned. Each party will have a time period not to exceed two hours in which to present a position.

The committee shall determine in executive session whether the grade was justified according to the course in which the grade

was given. If the evidence is that the grade was determined according to the stated objectives, criteria and grading procedures of the course, the committee shall uphold the grade. The committee should also take into account that purposes, methods, requirements and grading criteria differ from course to course and that difference is a legitimate characteristic of a university and its faculty. Further, the grade in some courses may be partly or solely determined by a faculty member's professional judgment, which in itself cannot be overturned without evidence that the judgment was arbitrarily or capriciously rendered. The committee shall consider (a) whether the faculty member(s) articulated the criteria to be used (some criteria may be implicit within the discipline), (b) whether those criteria were actually used to determine the final grade, and (c) whether the results of the evaluation were communicated to the student.

No grade may be changed except by a vote of at least three out of four voting members. When the committee has reached a decision, the committee chair shall submit to the dean in writing the decision and the reasons for it. The dean shall communicate in writing the decision of the committee to the appealing student, faculty member(s), and the department chair. If the grade has been changed, the dean shall also notify the registrar.

The evidence, proceedings, and the final decision of the committee shall remain confidential. All documents shall be held in a confidential file by the dean for one year. The party from whom a document was obtained may request that it be returned at the end of the year. All documentation not returned shall be destroyed by the dean one year later.

Approved by the University Assembly Dec. 3, 1981.
Effective Feb. 15, 1982.
Revised September 1996. Effective Aug. 15, 1997.

Please note: Any student who has questions about initiating an appeal using the grade review procedure should call the office of the dean of his or her school or college.

Transcripts

A transcript is a copy of the student's academic record. All transcripts carry the University Seal. However, unofficial transcripts given directly to students are marked "issued to student" in red ink.

Transcripts of student academic records are issued by the Office of Records and Registration only upon the written request of the student. The request should be made at least one week before the transcript is needed. The first three transcripts are free; subsequent requests will cost \$5 per transcript. Unofficial copies of transcripts for currently enrolled students can be obtained via the Web through links on the VCU home page.

A transcript is issued only after the student has paid all university bills.

Transcript requests signed by the student may be submitted in person at the Student Services Center, Founders Hall, Room 102, (Academic Campus), Sanger Hall, Room 1-055 (MCV Campus) or by mail to the Office of Records and Registration, 827 W. Franklin St., P.O. Box 842520, Richmond, VA 23284-2520 (Academic Campus), or Office of Records and Registration, 1101 E. Marshall St., P.O. Box 980277, Richmond, VA 23298-0277 (MCV Campus).

Academic Progress Report

An Academic Progress Report is accessible through OnTrack@VCU via links to current students on the VCU home page. This computerized report tracks the completion of a student's declared degree by course and requirement. It outlines in concise form the general education, major, collateral requirements and electives for a student's degree program (and concentration), and the way in which the student is completing those requirements. This report is not intended to replace contact with academic advisers. It will, however, provide accurate up-to-date information to assist students and advisers in making wise academic choices.

Continuance in academic programs

Academic Campus programs

Definition of good standing

A student who has been admitted to VCU and is currently enrolled is in "good standing" until such time that the student is placed on academic warning, probation or suspension.

Academic warning

A student is placed on academic warning when the student's cumulative GPA falls below 2.0 (grade "C") at the conclusion of any semester of attendance — fall, spring or summer. Notification of warning appears on the student's academic record. A degree-seeking student on academic warning may not enroll in more than 14 credits per semester of attendance. A nondegree-seeking student on academic warning may not enroll for more than 11 credits per semester of attendance. A student remains on academic warning for one semester of attendance, at the end of which time the student must obtain a cumulative GPA of at least 2.0. Failure to achieve this GPA results in academic probation.

Academic probation

A student is placed on academic probation when the student's cumulative GPA falls below 2.0 for two successive semesters of attendance, including summer sessions. Notification of probation appears on the student's academic record.

A degree-seeking student on academic probation may not enroll in more than 13 credits per semester of attendance. A nondegree-seeking student on academic probation may not enroll in more than 11 credits per semester of attendance. Students on academic probation are expected to improve their cumulative GPA by achieving a semester GPA of 2.0 or better during each semester of attendance. A student who achieves a cumulative GPA of at least 2.0 is removed from academic probation. Failure to achieve a 2.0 semester GPA while on probation results in academic suspension.

Academic suspension

A student is placed on academic suspension when the student's cumulative GPA is below 2.0 for two successive semesters and the following semester of attendance GPA falls below 2.0.

Notification of suspension appears on the student's academic record. The student also receives a letter from the Office of Records and Registration stating the conditions of the suspension. Academic suspension indicates the student has a record of continued unsatisfactory progress.

A student on academic suspension **may not enroll** at the university for two consecu-

tive semesters, including the summer session. Course work taken at another institution while the student is under academic suspension from VCU is considered part of the criteria for readmission, but the course work is not used to increase the VCU cumulative GPA. If the student is readmitted, the course work will be evaluated according to regular procedures.

A student may apply for readmission to VCU for the semester following completion of the suspension period. A student readmitted after suspension enrolls under the academic probation status and is subject to the provisions of that status. If a student readmitted after suspension fails to obtain a semester GPA of 2.0 in any semester before achieving a cumulative GPA of at least 2.0, the student is placed on a second, five-year suspension. The student may be considered for readmission after a minimum five-year separation from VCU.

Although a student may be approved for readmission to VCU, the student is not automatically eligible to receive federal or state financial aid. See the "Expenses and Financial Aid" chapter of this bulletin for information about Reasonable Academic Progress (RAP) standards and suspension of aid eligibility. Detailed information about the RAP appeals process can be found on the VCU Office of Financial Aid Web site through links for "Current Students" on the VCU Web site.

For readmission guidelines, see the "Admission to the University" chapter of this bulletin.

MCV Campus programs

Warning, probation and suspension are defined by the program of study. Consult program adviser for further details.

Termination of enrollment

The university reserves the right to terminate the enrollment of any student for unlawful, disorderly or immoral conduct, or for persistent failure to fulfill the purposes for which he or she was matriculated. Any students whose relations are so severed forfeit all rights and claims with respect to the institution.

In addition to dismissal for failure to comply with standards of conduct described in the Rules and Procedures of VCU and the VCU Honor Code, a student may be

dismissed from the school in which he or she is enrolled for failure to meet academic requirements prescribed by his or her school or failure to exhibit the attitudes and skills deemed necessary to function within the chosen professional practice. VCU recognizes its responsibilities to the health professions and to the consumer of health services. Therefore, any action by a student considered to be unprofessional conduct according to the code of ethics and the laws and regulations governing the student's chosen profession shall constitute cause for disciplinary action.

Unprofessional conduct includes, but is not limited to:

1. fraud or deceit in gaining admission to the university, i.e., false or obviously misleading representations on the admissions application,
2. an act that violates the established legal standards regarding conduct of one person towards society, i.e., stealing, lying, cheating, and slander, and
3. conviction of a felony involving moral turpitude.

The individual health science schools recognize and support the statements set forth by the licensing boards of the respective health professions as they relate to examination, licensure, and the practice of each profession. When applicable, these standards may be used in determining a student's eligibility for continuance in or readmission to the university.

Degree requirements for all undergraduate students

The degree requirements that must be fulfilled by all degree-seeking students are listed below. For additional degree requirements, students must consult the school and major departmental sections of this bulletin.

In order for a student to be awarded a diploma, he or she must resolve any outstanding charges owed to the university. The university does not guarantee the award of a degree or a certificate of satisfactory completion of any course of study or training program.

At any time following the award of a degree, certificate or other university recognition, the university reserves the right to

take appropriate action, including, but not limited to, the revocation of such degree, certificate or other university recognition, on the basis of academic misconduct discovered subsequent to, but which occurred prior to, the award of the degree, certificate or other university recognition. More specifically, when an action that constitutes a violation of the VCU Honor System leads to a finding that invalidates a major piece of work required for a degree, certificate or other university recognition so that the validity of the degree, certificate or other university recognition is jeopardized, the student or former student will be subject to a sanction that may include (a) rejection of a thesis, dissertation or other work, (b) revocation of a certification or other university recognition or (c) revocation of a degree.

Upper-level courses

A minimum of 45 credits in 300- to 500-level courses or the equivalent is required for a bachelor's degree.

GPA requirement

A cumulative GPA of 2.0 (grade "C") or better is required in order to receive a baccalaureate degree. Only credits taken at VCU are computed in the GPA.

Some programs may require a higher cumulative GPA. Students should consult the section of this bulletin that deals with their major for any GPA requirements above the university's 2.0 minimum.

Total credits

The minimum semester credits for any undergraduate VCU degree is 120. The total number of semester credits required for graduation depends on the student's major and area of concentration. Specific information on total credit requirements is detailed under degree program descriptions in each school's chapter of this bulletin.

Last 25 percent rule

Degree candidates must complete the last 25 percent of the credit semester hours required for their bachelor's degree program at VCU. Exceptions to this rule may be granted by the Academic Regulations Committee.

This requirement does not apply to students who participate in VCU-sponsored programs abroad or who earn course

credit at a cooperating university through VCU domestic and international university exchanges.

Graduation process

Graduation application

VCU confers degrees in May, August and December. A commencement exercise is held in May for May graduates only. A commencement exercise is held in December for August graduates and December candidates. Each student who expects to complete the degree requirements by the end of a semester or summer session must file an application for the degree in accordance with dates published on the university calendar.

Application request forms are available at the Student Services Center in Founders Hall for Academic Campus students and via a Link on the Web. MCV Campus students should contact their department for graduation applications. Degree applications must be submitted by the dates indicated in the calendar published in this bulletin and on the Web. A student needs to schedule a conference with the adviser well in advance of the deadline and should remember that the application also requires approval by the department chair and dean.

Graduating with honors

Dean's list

The dean's list is a recognition of superior academic performance. A student is automatically placed on the dean's list for each semester in which a semester GPA of at least 3.5 is attained, based on a minimum of 12 semester credits excluding courses graded credit/noncredit with no grade below "C." A notation is placed on the student's academic record. Students earning marks of "I" or "PR" are ineligible for the dean's list for the semester in which these grades were earned.

Laudatory honors

Candidates for a baccalaureate degree who complete a minimum of 45 credits at VCU may qualify for graduation honors. Cum Laude is awarded for a 3.30 to 3.59 GPA, Magna Cum Laude is awarded for a 3.60 to 3.89 GPA, and Summa Cum Laude is awarded for a 3.90 GPA or better, at the time of graduation.

Calculation of the GPA for honors determination is based on grades received for all courses taken for credit at VCU, as well as for credits accepted for transfer at VCU. However, to qualify for graduation honors, a student's GPA for courses taken for credit at VCU must be at least as high as the minimum required for the specific honor bestowed. Recognition of graduation honors is made on the student's diploma, permanent record, and in the commencement program (because of the early publication of the commencement program, the honor status from the last semester prior to graduation will be reflected in the commencement program).

Students who have participated in the University Honors Program and who have met requirements of that program may graduate with "University Honors." Please refer to the section on the University Honors Program for more information.

Special notes for graduating financial aid recipients

If a student plans to continue enrollment at VCU after graduation and wants financial aid, he or she must apply and be accepted as a degree/certificate-seeking student and enroll at least half time to meet financial aid enrollment requirements.

If a student received federal loan funds during enrollment at VCU, he or she may be required to complete a loan exit counseling session as listed below. The student's diploma will not be released until he or she completes this required obligation.

Exit counseling required

Exit counseling is required for students borrowing the following loans: Federal Perkins Loan, Health Professions Student Loan, Nursing Student Loan, Loan for Disadvantaged Students, Primary Care Loan and University Long-term Loan. Borrowers will be notified about exit counseling sessions during the semester in which they graduate or drop below half-time enrollment.

Exit counseling optional

Exit counseling is optional for students borrowing a Federal Direct Loan (subsidized or unsubsidized). Exit counseling instructions are available on the VCU Office of Financial Aid Web site through links to "Current Students" on the VCU home page.

Commencement participation policy

When a student has submitted a degree application for spring graduation but does not meet degree requirements due to extenuating circumstances, the student's dean may permit the student to participate in commencement exercises. Permission may be granted only when six or fewer credits are lacking for degree completion and the student demonstrates his or her intent to complete the needed credits by the end of the summer session.

When such an exception is made, the dean confirms the following conditions to the student:

- Participation in the commencement ceremonies does not mean the student has been awarded a degree.
- The degree will be awarded in the semester or summer session in which all degree requirements have been met.
- The exemption is made only to accommodate the student's request and does not obligate VCU to ultimately grant a degree unless all requirements and conditions have been met.

MCV Campus graduation candidates for degrees to be conferred at the close of the spring semester must be present at the university-wide graduation ceremony to receive their degrees. No individual may be exempt from this regulation unless excused by the dean of his or her school.

Appeal to waive an academic regulation, Academic Regulations Appeals Committee

The Academic Regulations Appeals Committee considers appeals for exceptions to undergraduate program academic regulations listed in this bulletin. The committee — composed of faculty and administrators from each school and the college and representatives from the Office of Records and Registration, Office of Community Programs and the Division of Student Affairs and Enrollment Services — is a standing committee of the Office of Academic Affairs.

Undergraduate students who wish to petition the university for a waiver of the regulations in this bulletin may do so through the

ARAC. Students who have been accepted to the graduate portion of a five-year bachelor's/master's program also may need to make an appeal through the Graduate School. Examples of typical petitions are requests for retroactive withdrawal, waiver of the continuance policy following a suspension, or a waiver of the rule requiring that the last 25 percent of a program be earned in residence at VCU. Students may petition for a past semester within three years, but cannot ask for waivers after having graduated.

To begin the appeal process, students should contact the ARAC representative in the dean's office of their school or college; special students should contact the College of Humanities and Sciences' Office of Academic Advising. The student then works with the representative to prepare the petition following guidelines established by each school and the college. The first step is for the student to prepare a letter which details the extenuating circumstances supporting the student's belief that the university should waive its regulations and grant the request. All circumstances cited in the student's letter must be documented, and the student is responsible for gathering all the necessary documentation. Examples of documentation include medical records, police reports, death certificates and employer reports. Things that may not be used as documentation include letters from parents, friends or relatives. Any petition that does not have the required documentation will not be heard.

After the ARAC representative receives the student's letter and all necessary documentation, he or she will prepare a petition cover sheet and, if appropriate, gather pertinent information from faculty. When the petition is complete, it will be presented to the committee at one of its semimonthly meetings. Requests are granted or denied by a majority vote of the committee. Decisions are effective immediately, and students are notified by their representative. All committee procedures are confidential and ensure the right of privacy of the student.

Since a request to waive a regulation is itself an appeal, committee decisions are final, and there is no further appeal within the university. However, if new documentable information is provided, petitions may be brought back before the committee. A rewritten student letter does not constitute new documentation. The representative will request that the petition be reheard

based upon the new information and the committee will vote on that request.

Certain exceptions may affect current and future financial aid. Students should consult with a financial aid staff member before submitting an appeal.

Awarding degrees posthumously

Recipients for posthumous degrees should meet the following conditions:

- The student was in good academic standing at the time of his or her death.
- There are no disciplinary actions pending against the student.
- The death was not a result of illegal behavior on the part of the student.
- The student earned at least 30 credits at VCU and was within the last 30 credits of graduating.

Graduate and professional programs will determine equivalent progress of students toward their graduate or professional degrees.

A notation that the degree was awarded posthumously will be made in the commencement program and on the transcript, but not on the diploma.

Consumer information

The federal Higher Education Act of 1965, as amended, requires that institutions of higher education disclose certain consumer information to current students, prospective students, current employees and/or prospective employees. This consumer information can be found online at <http://www.consumerinfo.vcu.edu> and includes information about:

- financial aid,
- general information about VCU,
- Student Right-to-know Act — completion and graduation rates for general student body and student athletes,
- Equity in Athletics Disclosure Act — athletically related expenses and student aid,
- drug and alcohol abuse prevention,
- campus security and

Academic Regulations and General Degree Requirements

- Family Educational Rights and Privacy Act (FERPA) – student rights with respect to educational records.

Paper copies of all of the information listed on the Consumer Information Web site are available upon request.

VCU Life Sciences

Thomas F. Huff

Vice Provost for Life Sciences and Professor of Microbiology and Immunology (1985)
B.S. 1974 Clemson University
Ph.D. 1980 University of Louisville

Herschell S. Emery

Director of Undergraduate Curricula
B.S. 1973 Rice University
Ph.D. 1982 Yale University
M. Ed. 1999 Virginia Commonwealth University

VCU entered a new era when it implemented, as one of its highest priorities, a new university-wide matrix academic organization called VCU Life Sciences, created in response to the need to prepare students for the anticipated growth in new life sciences jobs in the coming decades. The skills identified for these jobs require highly interdisciplinary or multidisciplinary approaches, often falling between the boundaries of traditional academic disciplines. The way that the life sciences are understood and taught is likely to be fundamentally different, with increasing emphasis on systems biosciences as an important complement to more traditional, purely reductive approaches. The objective of Phase II of VCU's strategic plan specifically outlines the need to bring VCU's major academic and administrative divisions together to work on mutual initiatives that will accomplish VCU's goal of national leadership. VCU Life Sciences is a response to that objective.

General education in VCU Life Sciences for B.S. and B.S.-Master's Programs

All students seeking baccalaureate degrees within VCU Life Sciences programs are required to fulfill the following undergraduate general education requirements totaling 53-58 credits.

1. Communicating (14 to 16 credits)

- A. **Composition and rhetoric** (six credits): ENGL 101 and ENGL 200 or equivalent, with a minimum of "C" grade in each course.
- B. **Writing intensive course work** (five to seven credits): two writing intensive (WI) courses selected from a list (to be developed by the Life Sciences Curriculum Committee), with at least one course in the major.
- C. **Oral communication** (three credits): consistent with Life Sciences' focus on programs to train entry-level professionals, instruction in professional scientific presentation skills will be emphasized in Life Sciences and included where most appropriate in core and elective courses in every program.

2. Ethics (three credits)

- A. **One course selected from an approved list**, or
- B. **Bioethics**: a course in bioethics, to be developed in collaboration with faculty in the Department of Philosophy and/or another department. This topic also is introduced in LFSC 101 and is to be infused as appropriate in the courses composing all Life Sciences programs.

3. Quantity and form (nine credits)

- A. **Statistics** (three credits): STAT 210 Basic Practice of Statistics.
- B. **Mathematics** (three credits): proficiency may be demonstrated through the Placement Test or acquired through completion of MATH 151 Precalculus Mathematics
- C. **One additional math or statistics course** from the following options:
 1. a statistics course numbered above 210, or
 2. a mathematics course numbered 200 or above.

4. Science and technology (10 credits)

- A. **Life science** (three credits): LFSC 101 Introduction to Life Sciences.
- B. **Physical science** (seven credits): CHEM 101-102 General Chemistry I-II and CHEZ 101L/FRSZ 101L General Chemistry Laboratory I. Some programs may require both semesters of General Chemistry Laboratory.

- C. **Technology** (0 credits): all students must pass the Computer Proficiency Assessment. Specific programs will specify earlier completion dates as appropriate in order to prepare students for course work requiring those skills.

5. Interdependence (nine to 11 credits)

- A. **Civilization** (three credits): one course selected from an approved list that would include topics in history, American studies and global studies, along with other appropriate topics.
- B. **Foreign language** (six to eight credits): completion of a foreign language through the 102 level, or by placement.

6. Visual and performing arts (two to three credits)

One course in the visual or performing arts, selected from an approved list.

7. Human behavior (six to seven credits)

Two courses selected from an approved list in different disciplines and focusing on human behavior.

Courses in life sciences (LFSC)

LFSC 101 Introduction to Life Sciences

Semester course; 2 lecture and 1 recitation hour. 3 credits. Introduction to theoretical, empirical and applied concepts of biological complexity linking various life sciences disciplines. Provides an overview of the scope of activities within life sciences. Allows students to refine particular areas of interest within the field and identify undergraduate research opportunities. Provides a foundation for further study in any life science major.

LFSC 401/RELS 401 Faith and Life Sciences

Semester course; 3 lecture hours. 3 credits. Prerequisites: Sophomore standing and ENGL 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death.

LFSC 510/BIOL 545 Integrative Life Sciences I: Biological Complexity

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: BIOL 310 and 317, CHEM 302, PHYS 202, MATH 200 or equivalents or permission of the instructor. Opened to qualified seniors and graduate students only. An introduction to the basis of complexity theory and the principles of emergent properties within the context of integrative life sciences. The dynamic interactions among biological, physical and social components of systems are emphasized, ranging from the molecular to ecosystem level. Modeling and simulation methods for investigating biological complexity are illustrated.

Center for Environmental Studies

Gregory C. Garman

Program Director and Associate Professor of Biology (1985)
 B.A. 1978 Millersville University
 M.S. 1980 Virginia Polytechnic Institute and State University
 Ph.D. 1984 University of Maine

The Center for Environmental Studies is an interdisciplinary center residing in VCU Life Sciences. The center was created in 1993 with the goal of focusing the many interdisciplinary environmentally based initiatives within VCU. As a part of that focus, the center administers a minor in environmental studies, Bachelor of Science and Master of Science degrees in Environmental Studies, Master of Environmental Studies (a professional master's degree) as well as a post-baccalaureate certificate program.

The environmental studies undergraduate degree is particularly well suited to students who wish to complement their study of the life sciences with an understanding of human interactions with the natural environment. It includes not only broad training in the sciences, but also instruction in applied research and the policy processes as they apply to environmental protection. The goal is to prepare graduates for careers in the ever-expanding environmental field, whether in governmental, nongovernmental/nonprofit, or private organizations.

The program also provides an appropriate degree for students interested in teaching careers in early, middle or special education. Students interested in this option may enroll in the Extended Teacher Preparation Program that results in the simultaneous awarding of the Bachelor of Science in Environmental Studies and a master's degree in teaching. For more information about this program, jointly administered by the School of Education and VCU Life Sciences,

contact the School of Education's Department of Teaching and Learning.

Degree requirements

Bachelor of Science in Environmental Studies. The Bachelor of Science curriculum in environmental studies requires a minimum of 120 credits.

Along with the general education requirements of the undergraduate programs and the College of Humanities and Sciences for a Bachelor of Science degree, this curriculum requires 32-33 credits in core science and mathematics courses and 37-38 credits in environmental studies core courses.

Core science and mathematics requirements (32 to 33 credits)

	credits
BIOL 151 Introduction to Biological Science I	3
BIOZ 151L Introduction to Biological Science Laboratory I	1
CHEM 101 General Chemistry I	3
CHEZ/FRSZ 101L General Chemistry Laboratory I	1
PHYS 201 General Physics	4
or PHYS 207 University Physics I	5
GEOG/ENVS 105 Physical Geology	3
and GEOZ/ENVZ 105L Physical Geology Laboratory	1
or GEOG 204 Physical Geology	3
and GEOZ 204L Physical Geology Laboratory	1
ENVS/GEOG 401 Meteorology and Climatology	3
ENVS/GEOG 411 Oceanography	3
MATH 151 Precalculus Mathematics	4
STAT 210 Basic Practice of Statistics	3
STAT 314 Applications of Statistics	3

Core Environmental Studies Requirements (37 to 38 credits)

BIOL 152 Introduction to Biological Science II	3
BIOZ 152L Introduction to Biological Science Laboratory II	1
BIOL 317 Ecology	3
BIOL 322/ENVS 332 Environmental Pollution	3
or BIOL 432 Biology of Polluted Waters	3
CHEM 102 General Chemistry II	3
CHEZ/FRSZ 102L General Chemistry Laboratory II	1
ECON 325 Environmental Economics	3
ENVS/GEOG 335 Environmental Geology	3
and ENVZ/GEOZ 335L Environmental Geology Laboratory	1
ENVS 490 Research Seminar in Environmental Studies	3
PHYS 202 General Physics	4
or PHYS 208 University Physics II	5
POLI/ENVS 311 Politics of the Environment	3

SOCY/POLI 320 Research Methods in the Social Sciences 3
 One additional environmental studies course chosen with adviser's approval

Minor in environmental studies

The minor in environmental studies provides an overview of the field that offers an intrinsically interesting way for many students to organize elective course work while gaining knowledge important to life in the contemporary world. This program is structured to provide a multidisciplinary introduction to biophysical and social factors that affect the quality of life, through the study of the scientific knowledge, policy considerations and the ethical issues that constitute environmental issues. When combined with the appropriate major, an environmental studies minor can be useful to students planning careers in any area concerned with environmental processes and problems. The minor also may prepare students for study at the graduate level in such concentrations as ecology and environmental systems.

The minor in environmental studies consists of 24 credits. Required courses are listed. Electives to complete the minor may be selected from ENVS-listed courses and from courses in related departments. Consult the environmental studies program coordinator or adviser for course approvals. At least one course must be taken from the natural sciences and one course from the social sciences. Of the 24 credits, 18 must be outside the student's major department. Twelve credits must be at the 300 level or higher.

Required courses for minor credits

	credits
URSP/ENVS 331 Environmental Systems	3
ENVS/POLI 311 Politics of the Environment	3
ECON 325 Environmental Economics	3
ENVS 490 Research Seminar in Environmental Studies	3
STAT 210 Basic Practice of Statistics	3
or MGMT 301 Business Statistics	3
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Post-baccalaureate Certificate in Environmental Studies

The environmental studies certificate is for students who already hold a bachelor's degree in another field and wish to pursue studies in the environmental studies field.

The certificate can help prepare students for work in such fields as industrial pollution control, municipal water treatment, environmental planning and analysis, biological monitoring, and science writing and reporting.

The post-baccalaureate certificate in environmental studies requires 36 credits, which includes four environmental courses and two statistics courses. Electives to complete the certificate may be selected from the ENVS-listed courses and from courses in related departments. Consult the environmental studies program coordinator or adviser for course approvals. At least one course must be taken from the natural sciences and one from the social sciences. Of the 36 credits, 24 credits must be at the 300 level or above. A maximum of 11 of the environmental studies-related credits and all six of the statistics credits may be transferred from course work completed before or after receiving the bachelor's degree. At least 18 approved credits must be taken at VCU.

Post-baccalaureate certificate students must apply for admission using an undergraduate admission form. Normally, a GPA of 2.7 or better is required for admission. Please contact the Center for Environmental Studies for the most current curriculum guidelines.

Required courses for certificate credits

	credits
URSP/ENVS 331 Environmental Systems or URSP/ENVS/GEOG 332 Environmental Management	3
ENVS/POLI 311 Politics of the Environment	3
ECON 325 Environmental Economics	3
ENVS 490 Research Seminar in Environmental Studies	3
STAT 210 Basic Practice of Statistics or MGMT 301 Business Statistics	3
Three additional credits in statistics above STAT 210 (Students may not receive credit for both STAT 210 and MGMT 301.)	3
	18

Additional recommended courses

BIOL 151 and 152 Introduction to Biological Science I and II and BIOZ 151L and 152L Introduction to Biological Science Laboratory I and II
CHEM 101-102 General Chemistry and CHEZ/FRSZ 101L, 102L General Chemistry Laboratory

Courses in environmental studies (ENVS)

ENVS 103/BIOL 103 Environmental Science

Semester course; 3 lecture and 1 online recitation hours. 4 credits. Students are required to participate in the classroom lecture and in the online recitation via high-speed connection. Basic scientific principles of environmental processes. Draws together aspects of biology, chemistry, geology, physics and sociology. Among the topics covered are ecology, natural resources, air and water resources, energy and recycling, population biology and sustainable global societies. Not applicable for credit toward the B.S. in Biology. Not applicable as a prerequisite for any biology course at the 200 level or above.

ENVZ 103L/BIOZ 103L Environmental Science Laboratory

Semester course; 2 hours. 1 credit. Pre- or corequisite: ENVS/BIOL 103. Intended for anthropology, criminal justice, English, foreign language, history, mass communications, philosophy, religious studies, political science, psychology, sociology, urban studies, majors and programs in other schools requiring science courses. Not intended for other College of Humanities and Sciences majors. Laboratory exercises correlated with ENVS/BIOL 103.

ENVS 105/GEOG 105 Physical Geology

Semester course; 3 lecture hours. 3 credits. A descriptive approach to physical geology dealing with the history and structure of the earth, catastrophic events and geology as it relates to the contemporary environment. An optional laboratory may be taken with this course. See GEOZ/ENVZ 105L.

ENVZ 105L/GEOZ 105L Physical Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 105. An optional laboratory course consisting of experiments and activities related to GEOG/ENVS 105.

ENVS 311/POLI 311 Politics of the Environment

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crises it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes.

ENVS 314/BIOL 315/INTL 314 Man and Environment

3 lecture hours. 3 credits. Not applicable to the biology major. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management, and population crises; cultural traditions as mechanisms of population control; basic theory of population biology.

ENVS 315/PHYS 315 Energy and the Environment

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior or senior standing. Open to non-physics majors; not applicable to the physics major. A study of society's demand for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives.

ENVS 330/BIOL 332 Environmental Pollution

Semester course; 3 lecture hours. 3 credits. Prerequisites: Eight credits in biology. Not applicable to the biology major. The study of pollution in the environment with emphasis on the procedures for detection and abatement.

ENVS 332/URSP 332/GEOG 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

ENVS 335/GEOG 335 Environmental Geology

Semester course; 3 lecture hours. 3 credits. Corequisite: ENVZ/GEOZ 335L. The relationship between humankind and the physical environment, Earth materials and processes, geological hazards, water, mineral and energy resources, land use and environmental health and law.

ENVZ 335L/GEOZ 335L Environmental Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: GEOG/ENVS 335. Required for environmental science majors enrolled in ENVS/GEOG 335; optional for other majors. Attendance on one Saturday morning field trip required. Laboratory exercises coordinated with GEOG/ENVS 335 lectures.

ENVS 385/ENGL 385 Nature Writing

3 lecture hours. 3 credits. Prerequisite: Three credits in 200-level literature courses (or equivalent). A study of the literary genre of nature writing in English.

ENVS 401/GEOG 401 Meteorology and Climatology

Semester course; 3 lecture hours. Prerequisite: GEOG 203 or a physical science sequence or permission of instructor. A basic, semiquantitative course in the elements of weather and climate, their driving forces and their spatial and temporal distribution and variability. Atmospheric motions and circulation, weather forecasting, human impact on weather and climate.

ENVZ 401L/GEOZ 401L Meteorology and Climatology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 401. A series of laboratory and field experiments designed to quantify the elements of weather and climate and to interpret their local temporal and spatial variations.

ENVS 411/GEOG 411 Oceanography

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 203 or PHYS 101 or a natural science sequence or permission of instructor. Designed for earth science teachers. A basic course in the physical, chemical and geological properties of oceans and ocean basins. Origin and character of ocean basins, properties of oceanic waters, oceanic circulation, land-sea interactions, marine environments and ecology.

ENVS 490 Research Seminar in Environmental Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing and at least 12 hours of approved environmental studies course work. An

interdisciplinary examination of problems and issues central to environmental studies. Environmental research of VCU faculty will be reviewed, and selected local environmental problems will be studied. Each student will complete a research project focusing on a specific environmental question.

ENVS 491 Topics in Environmental Studies

Semester course; variable; 1-3 credits per semester. May be repeated with different topics for a maximum of six credits. Prerequisites vary by topic. An in-depth study of a selected environmental topic. See the Schedule of Classes for specific topic(s) and prerequisites.

ENVS 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester; maximum total of six credits for all topics courses. Open generally to juniors or seniors who have declared environmental studies as a minor. Determination of the amount of credit and permission of instructor must be procured prior to registration for the course.

ENVS 493 Environmental Studies Internship

Semester course; variable; 1-3 credits per semester. Maximum total of six credits. Open to students of senior standing who have had some background in environmental studies. Students receive credit for work on environmental projects with approved agencies. Participation requires the approval of both a faculty member and an agency. Graded as pass/fail.

ENVS 521/URSP 521/GEOG 521 Introduction to Geographic Information Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. An introduction to creating and using geographically referenced databases for urban and environmental analysis and planning. Includes geographic and remote sensing data structures, global positioning systems, spatial analysis, geographic data standards, public domain software and data resources, and principles of cartography design. Lab exercises in the use of geographic information systems software tools.

ENVS 556/ANTH 556 Historical and Cultural Landscapes

Semester course; 3 lecture hours. 3 credits. Open only to seniors who have completed ANTH 302 or 303 and graduate students with permission of instructor. Students will study historical and contemporary landscapes as the products of and the producers of human culture, with particular attention to riverine landscapes. Focus will be on the ways in which humans shape and respond to their ecosystems. Students will participate in an active field research program, including the archaeological recovery and analysis of historical landscapes.

Center for the Study of Biological Complexity

Gregory A. Buck

Program Director and Professor of Microbiology and Immunology (1984)
B.S. 1975 University of Wisconsin
Ph.D. 1981 University of Washington, Seattle

The Center for the Study of Biological Complexity is a new multidisciplinary focus of research and scholarly activity within

VCU Life Sciences. The center oversees the bioinformatics programs, including the Bachelor of Science degree program and the Accelerated B.S.-Master's Program.

Bachelor of Science in Bioinformatics

This bioinformatics program consists of a core curriculum that provides the basics of biology, chemistry, computer science and statistics, as well as an introduction to the field of bioinformatics.

Students wishing to pursue the bioinformatics major must apply for admission into the program. High school seniors as well as students transferring to VCU should follow the regular VCU admissions process and deadlines, being sure to indicate clearly in their application that they wish to apply to the bioinformatics program. Continuing VCU students wishing to apply to the program will find information about the application process at http://www.vcu.edu/csbc/bioinformatics/bs_overview.html or by calling the director of undergraduate curricula at (804) 828-0559 or the center at (804) 827-0337.

High school seniors or first semester VCU students wishing to be considered for the bioinformatics major should present a suggested high school GPA of 3.3 (unweighted), a suggested combined SAT score of 1100 and should meet all other general admission requirements set forth by the Office of Undergraduate Admissions.

Transfer students and continuing VCU students with at least 15 college credits should present a suggested college GPA of 3.0 including relevant course work in science, math or computer science.

Degree requirements

The bachelor's program in bioinformatics requires breadth training via VCU Life Sciences general education requirements, specific training in the collateral course work and bioinformatics core, and focused training in the areas of biology/genomics, computational science and quantitative/statistical bioinformatics through the track-specific courses. Students may choose from three tracks: biology/genomics, computational bioinformatics and quantitative/statistical bioinformatics.

Students must achieve an overall GPA of 2.5 or better and a GPA of 3.0 or better

in the bioinformatics major courses. The GPA is based on all courses attempted after acceptance into the program.

The Bachelor of Science degree in bioinformatics requires a total of 120 credits.

General education – 29 to 33 credits not met within program

Refer to the listing at the beginning of this chapter.

Outside electives – 11 to 15 credits

Collateral course work – 14 credits

LFSC 101 Introduction to Life Sciences	3
MATH 200 Calculus with Analytic Geometry I	4
MATH 211 Mathematical Structures	3
PHYS 207 University Physics I	4*

* Preferred. With program approval, PHYS 201 may be substituted.

Core courses – 40 credits

Students must take the following courses regardless of chosen track. Students admitted to the accelerated B.S.-Master's program substitute BNFO 620 Bioinformatics Practicum for BNFO 420 Applications in Bioinformatics. (Approved Writing Intensive courses for meeting general education requirements are identified with "WI." Two courses designated ".5 WI" are counted as one "WI" course.)

Bioinformatics

BNFO 301 Introduction to Bioinformatics	3
BNFO 420 Applications in Bioinformatics	3*
BIOL 540 Fundamentals of Molecular Genetics	3

Biology

BIOL 151 Introduction to Biological Science I	3
BIOL 152 Introduction to Biological Science II	3
BIOL 218 Cell Biology	3

Chemistry

CHEM 101 General Chemistry I	3
CHEZ/FRSZ 101L General Chemistry Laboratory I	1
CHEM 102 General Chemistry II	3
CHEM 301 Organic Chemistry I	3

Computer Science

CMSC 255 Introduction to Programming	3
CMSC 256 Data Structures and Object Oriented Programming	3

Statistics

STAT 212 Concepts of Statistics**	3
STAT 314 Applications of Statistics	3

* Proposed oral communication course for students pursuing the Bachelor of Science. For B.S.-Master's students pursuing the Master of

Bioinformatics degree (a professional science master's), BNFO 620 Practicum may be used to meet this general education requirement. For B.S.-Master's students pursuing the Master of Science degree (a thesis master's), BNFO 508 Introduction to Research may be used.

** Preferred. With program approval, STAT 210 may be substituted.

Bioinformatics tracks – 15 to 16 credits of required or elective track courses plus six to seven credits of electives

In order to build a strong undergraduate foundation in at least one area of bioinformatics, students in both the B.S. and the B.S.-Master's programs must select one of the following three tracks. Depending upon the track selected, eight to 15 of these credits are specified as required courses, while other credits may be selected as electives from a track list.

At least six additional bioinformatics electives are set aside, allowing students to either explore a new track or further explore their chosen track. Students pursuing the B.S.-Master's program are strongly encouraged to use these electives to optimize their preparation for their intended master's track.

Biology/genomics track

Required courses

CHEM 302 Organic Chemistry II	3
CHEM/BIOC 403 Biochemistry	3
BIOL 300 Biotechniques Laboratory (.5WI, B.S.) or BIOL 541 Laboratory in Molecular Genetics* (WI, B.S.-Master's)	2

* BIOL 541 should be taken only with BIOL 540 Fundamentals of Molecular Genetics.

Electives

BNFO 440 Computational Methods in Bioinformatics	3
BNFO 491 Special Topics in Bioinformatics	3*
BNFO 492 Independent Study	variable credit*
BNFO 497 Research and Thesis (WI)	variable credit*
BIOL 540 Fundamentals of Molecular Genetics	3
BIOL 541 Laboratory in Molecular Genetics (WI)	2
BIOL 300 Biotechniques Laboratory (.5 WI)	2
BIOL 310 Genetics	3
BIO 310L Laboratory in Genetics (.5 WI)	2
BIOL 317 Ecology	3
BIO 317L Ecology Laboratory (.5 WI)	2
BIOL 455 Immunology	3
BIOL 550 Ecological Genetics	3
CHEZ 301L Organic Chemistry Laboratory I	1
CHEZ 302L Organic Chemistry Laboratory II	1
HGEN/BIOL 516 Population Genetics	3
MICR 515 Principles of Molecular Microbiology	3

* May be taken only with adviser's permission.

Computational science bioinformatics track

Required courses

CMSC 301 Introduction to Discrete Structures	3
CMSC 355 Program Design	3
CMSC 401 Algorithm Analysis with Advanced Data Structures	3
CMSC 490 Research Seminar (WI)	1

Electives

CMSC 502 Parallel Programming	3
CMSC 508 Data Base Theory	3
CMSC 509 Artificial Intelligence	3
CMSC 511 Computer Graphics	3
CMSC 591 Topics in Computer Science (with permission of adviser)	3
BNFO 440 Computational Methods in Bioinformatics	3
BNFO 491 Special Topics in Bioinformatics	3*
BNFO 492 Independent Study	variable credit*
BNFO 497 Research and Thesis (WI)	variable credit*

* May be taken only with adviser's permission.

Quantitative/statistical bioinformatics track

Required courses

MATH 201 Calculus with Analytic Geometry	4
MATH 307 Multivariate Calculus	3
MATH 310 Linear Algebra	3
STAT 321 Introduction to Statistical Computing	3
STAT/OPER 490 Communications in Statistics and Operations Research (WI)	2

Electives

STAT/MATH 309 Introduction to Probability Theory	3
STAT 421 Computational Issues in Statistical Science	3
BIOS/STAT 513 Mathematical Statistics I	3
BIOS/STAT 514 Mathematical Statistics II	3
BIOS 524 Biostatistical Computing	3
Statistical methods courses	
STAT 541 Applied Statistics for Engineers and Scientists	3
BIOS 553-554 Applied Statistics I and II or STAT/BIOS 543, 544 Statistical Methods I and II	3, 3
BIOS 546 Linear Models	3
BIOS 591 Special Topics: Applied Data Mining	3
BNFO 491 Special Topics in Bioinformatics	3*
BNFO 492 Independent Study	variable credit*
BNF 497 Research and Thesis (WI)	variable credit*

* May be taken only with advisers permission.

Accelerated B.S.-Master's Program

The Accelerated B.S.-Master's Program permits selected students majoring in bioinformatics to earn the B.S. and master's degrees

in a minimum of five years, by taking certain graduate-level courses during the senior year of their undergraduate program.

Students enrolled in this program may take up to six credits in the bioinformatics master's curriculum in each of the final two semesters of their undergraduate studies. These courses will be applied toward the undergraduate degree requirement and the graduate degree requirement.

Students will receive both degrees simultaneously upon completion of all requirements.

A complete description of the master's program in bioinformatics is provided in the "VCU Life Sciences" section of the Graduate and Professional Programs Bulletin.

Admission requirements

VCU bioinformatics majors wishing to pursue the Accelerated B.S.-Master's Program must apply for admission into the program. Students will find information about the application process at http://www.vcu.edu/csbc/bioinformatics/accelerated_overview.html or by calling the center at (804) 828-0559 or (804) 827-0337.

The accelerated program is restricted to students with demonstrated strong academic ability, personal qualities that exemplify dedication and professionalism, and a clear interest in a career in industry, academia or the government. In order to be considered for regular admission into this program, a student:

- must be a VCU bioinformatics major,
- must have completed 90 credits with an overall GPA of at least 3.0,
- must have at least 50 of the 90 credits in collateral and core course work within the major with at least a 3.3 GPA.

Most students will be eligible to apply immediately following their junior year and must submit an application to the Graduate School that includes:

- two form-based recommendations from VCU faculty,
- a personal statement,
- scores from the GRE General Test and
- a VCU transcript.

Degree requirements

Once admitted to the accelerated program, students must continue to meet the requirements stated above throughout their senior year, as well as graduate student standards of performance specified on the Graduate and Professional Programs Bulletin Web site, <http://www.vcu.edu/bulletins>. Formal acceptance into the graduate program is typically granted just prior to the fall semester of the fifth year. Receipt of a "C" or lower in two graduate courses constitutes automatic dismissal from the accelerated program. Degree candidates must maintain a GPA of 3.0 or greater, and the GPA is based on all graduate courses attempted after acceptance in the program. Undergraduate students who major in bioinformatics and fail to qualify for or to complete the master's portion of the accelerated program will earn the bachelor's degree once all B.S. program requirements are completed.

Graduate-level course work completed prior to matriculation into the program, including course work taken in another program at VCU or other institution will be evaluated to determine whether it can be used to fulfill degree requirements of this program.

A maximum of six graduate credits earned at an institution other than VCU can be accepted for transfer into the program if not previously applied toward another degree. A minimum grade of "B" is required for transfer of credits.

Curriculum

Undergraduate credits outside of program	45
Undergraduate credits within program, minus 12 shared credits (see listing)	63
Graduate credits within program (professional track) and 41 (thesis track)	35
Total B.S.-M.S. credits (professional track) and 149 (thesis track)	143

Shared credits (total of 12 credits)

1. BNFO 620 Bioinformatics Practicum or BNFO 508 Introduction to Bioinformatics Research replaces BNFO 420 Applications in Bioinformatics 3*
2. Courses taken to meet master's cross-track requirements replaces B.S. program electives 6
3. Graduate course within the track replaces a B.S. track requirement or elective course 3

* For B.S.-Master's students, BNFO 620 and BNFO 508 replace BNFO 420 to meet the oral communication general education requirement.

Refer to the Graduate and Professional Programs Bulletin for specific graduate course requirements, <http://www.vcu.edu/bulletins>.

Guaranteed admission

The bioinformatics master's program participates in the Guaranteed Admissions Program. Students must apply through the University Honors Program. Once admitted, students must fulfill all requirements set forth by the University Honors Program, maintain a 3.5 GPA and meet the course requirements of the bioinformatics graduate program.

Courses in bioinformatics (BNFO)

BNFO 292 Independent Study

Semester course; variable hours. 1-2 credits. May be repeated for a maximum total of six credits. Prerequisites: BNFO 301 and an overall GPA of 3.0; permission of instructor and adviser. Determination of the amount of credit and permission of the instructor and adviser must be obtained prior to registration for this course. A course designed to provide an opportunity for independent readings of the bioinformatics literature under supervision of a staff member.

BNFO 301/BIOL 351 Introduction to Bioinformatics

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 218 and MATH 200. Corequisite: CHEM 301. Introduction to the basic concepts, tools and possibilities of bioinformatics, the analysis of large bodies of biological information. The course stresses problem solving and integrative projects, making extensive use of exercises in class that draw on bioinformatics resources on the Web and on local servers.

BNFO 420 Applications in Bioinformatics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Course coordinator will identify and assign to student teams different parts of a variety of current research problems, with input from other VCU faculty and industry researchers affiliated with the Bioinformatics Program. Course includes explicit instruction in the conduct of research as well as a review of applicable strategies, methods and technologies. Oral presentation in large and small groups is emphasized, with systematic feedback and practice opportunities provided. Students also will study representative bioinformatics research going on at VCU and area industrial labs through researcher and graduate student presentations, and through tours of research laboratory. This course satisfies the Life Sciences General Education "oral communication" requirement.

BNFO 440 Computational Methods in Bioinformatics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CMSC 255 and 256; BNFO 301, or permission of instructor. An introduction to mathematical and computational methods in bioinformatics analysis. Topics include but are not limited to operating systems, interfaces, languages, SQL, search algorithms, string manipulation, gene sequencing, simulation and modeling, and pattern recognition. Students will be exposed to Maple, Matlab, SPSS, E-cell, BioPerl, Epigram and C as part of the requirements of this course.

BNFO 491 Special Topics in Bioinformatics

Semester course; variable hours. 1-4 credits. Prerequisites: Permission of instructor and adviser. An introductory, detailed study of a selected topic in bioinformatics unavailable as an existing course. Students will find specific topics and prerequisites for each special topics course listed in the Schedule of Classes. If multiple topics are offered, students may elect to take more than one. Adviser's approval is required for counting each special topics course toward meeting specific requirements of the B.S. program.

BNFO 492 Independent Study

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is required. 1-4 credits. May be repeated for a maximum total of six credits. Prerequisites: BIOL 218, CHEM 301, CMSC 256, STAT 314, BNFO 301, and permission of instructor and adviser. A proposal acceptable to the supervising faculty member and adviser is required. Determination of the amount of credit and permission of the instructor and adviser must be obtained prior to registration of this course. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A final report must be submitted at the completion of the project. Graded as pass/fail.

BNFO 497 Research and Thesis

Semester course; variable hours. A minimum of three hours of supervised activity per week per credit is required. 1-4 credits. May be repeated for a maximum total of six credits. Prerequisites: BIOL 218, CHEM 301, CMSC 256, STAT 314, BNFO 301, junior or senior status, and permission of instructor and adviser. A proposal acceptable to the supervising faculty member and adviser is required. Determination of the amount of credit and permission of the instructor and adviser must be obtained prior to registration of this course. Projects should include data collection and analysis, learning bioinformatics-related research techniques, and mastering experimental procedures, all under the direct supervision of a faculty member. A written thesis of substantial quality is required at the completion of the research.

College of Humanities and Sciences

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Dean (1997)
B.A. 1971 University of Oregon
M.A. 1977 Johns Hopkins University
Ph.D. 1977 Johns Hopkins University

Albert T. Sneden

Senior Associate Dean and Professor of Chemistry
(1977)
B.S. 1968 Carnegie Mellon University
Ph.D. 1975 Brandeis University

Jon Steingass

Associate Dean for Undergraduate Student Affairs
(2000)
B.S. 1984 University of Toledo
M.A. 1986 Bowling Green State University
Ph.D. 1997 University of Toledo

Laura J. Moriarty

Assistant Dean and Associate Professor of Criminal
Justice (1993)
B.C.J. 1984 Louisiana State University
M.S. 1985 Louisiana State University
Ph.D. 1988 Sam Houston State University

Xochela V. James

Director and Assistant Professor (1978), The
College Success Program
B.S. 1968 Virginia State University
M.S. 1975 Virginia Commonwealth University
Ph.D. 1990 Virginia Commonwealth University

Mission of the college

The faculty and staff of the College of Humanities and Sciences are dedicated to excellence in teaching, research and public service. The mission of Virginia Commonwealth University provides the framework for this pursuit of excellence.

Teaching and learning are central to the college, and the college is central to the educational and intellectual life at VCU. The college meets the educational needs of a diverse student body, provides general education for all undergraduate students of the university, preparatory programs for the

health sciences, engineering and law, and educates future teachers in the liberal arts and sciences. The college offers comprehensive undergraduate, graduate and professional programs of study that link a foundation of understanding and knowledge with skills on which students can build careers, become responsible citizens and continue lifelong learning.

Scholarship, creative work and professional accomplishment are essential to teaching and learning. The college is responsible for advancing understanding and increasing knowledge for its own sake, for the educational benefit of its students, and for the good of the larger community.

In both teaching and research, the College of Humanities and Sciences seriously upholds the responsibilities of being part of a public, metropolitan university. Through service and public teaching, the college meets the challenges and opportunities afforded by VCU's urban environment and by its location in the capital of the commonwealth.

The college achieves national and international recognition through the success of its students, the advancement of the disciplines and professions represented by its programs, and through the individual and collaborative research of its faculty.

Undergraduate degree programs

The College of Humanities and Sciences offers baccalaureate degrees in 21 areas:

African American Studies – B.A.
Anthropology – B.S.
Biology – B.S.
Chemistry – B.S.
Criminal Justice – B.S.
 forensic crime scene investigation
 justice
Economics – B.S.
English – B.A.
Foreign Languages – B.A.
 French
 German
 Spanish
Forensic Science – B.S.

History – B.A.
Interdisciplinary Studies – B.I.S.
 individualized
 women's studies
International Studies – B.A.
 area studies
 global studies
Mass Communications – B.S.
 advertising
 journalism
 broadcast
 print
 public relations
Mathematical Sciences – B.S.
 applied mathematics
 mathematics
 operations research
 secondary mathematics teacher preparation
 statistics
Philosophy – B.A.
 ethics and public policy
Physics – B.S.
Political Science – B.A.
Psychology – B.S.
Religious Studies – B.A.
Science – B.S.
 biology
 chemistry
 general science
 mathematical sciences
 physics
Sociology – B.S.
Urban Studies and Geography – B.S.
 generalized
 geography
 urban studies

Information concerning curricula is given in the respective departmental and school sections.

Minors and certificates

In addition to a major, a student may elect a minor area of study in any program or department offering such a program. The minor can be used to fulfill career needs or serve as a means for the student to study a discipline of secondary interest.

Students interested in pursuing a minor should discuss their intentions with their advisers or the chair of the major department. When the student decides on a

minor, a Change of Major/Minor form must be completed in the Office of Records and Registration. When the student files for graduation, the student must complete the Minor Application along with the Graduation Application.

Courses for the minor should be chosen from courses approved by departments offering minors in their areas. Generally, students can not minor in the same area as their major.

A minor designation on the transcript requires a minimum of 18 credit hours and a minimum 2.0 GPA must be achieved in the minor. Prerequisites for courses are stated under course descriptions in this bulletin.

Detailed descriptions of each minor appear under the various departmental headings in this section of the bulletin.

Areas in which certificates are awarded are designated with an asterisk.

Minors are offered in the following areas:

- African American studies
- American studies
- anthropology
- area studies
 - African
 - Asian
 - Latin American
 - Middle Eastern
 - Russian and Eastern European
 - Western European

- biology
- Catholic studies
- chemistry
- criminal justice
- economics
- English
- French
- geography
- German
- global studies
 - the arts in global perspective
 - health in global perspective
 - international institutions and globalization
 - international relations
 - international social justice studies
 - social relations in international perspective
- history
- international management studies
- Italian
- Judaic studies
- Latin and Roman studies
- mathematical sciences
- media studies
- Native American studies
- philosophy
- philosophy of law
- physics
- political science
- psychology
- public management

- religious studies
- sociology
- Spanish
- statistics
- urban studies
- women's studies
- writing (see English)

Preparation for professional studies

In addition to providing studies in liberal arts at the undergraduate and graduate levels, the college offers undergraduate preparatory programs and advising for the following areas:

- pre-clinical laboratory sciences
- pre-dental hygiene
- pre-dentistry
- pre-law
- pre-medicine
- pre-nursing
- pre-occupational therapy
- pre-optometry
- pre-pharmacy
- pre-physical therapy
- pre-radiation sciences
- pre-veterinary medicine

Specific curricular descriptions are listed elsewhere in this section.

Teacher preparation

Students in the college can apply to the Extended Teacher Preparation Program sponsored jointly with the School of Education. This program awards both a bachelor's degree from the College of Humanities and Sciences and a master's degree from the School of Education. Students who successfully complete this program will be certified to teach in early childhood, middle, secondary or special education.

Additional information on this five-year program is available at the School of Education's Office of Student Services in Room 2087, Oliver Hall, or by calling (804) 827-2670. A more thorough description of this program is found under the "School of Education" chapter of this bulletin and in the Extended Teacher Preparation Handbook available from the School of Education's Department of Teaching and Learning or the College of Humanities and Sciences Dean's Office.

Information about VCU students' performances on the state-mandated licensure tests (Praxis I: Reading, Writing and Math-

ematics and Praxis II: Specialty Area Tests) is available on the School of Education Web site: <http://www.soe.vcu.edu>.

Graduate studies

Master's degree programs are offered in biology, chemistry, creative writing, criminal justice, forensic science, English, history, mass communications, mathematical sciences, physics and applied physics, psychology, public administration, sociology, and urban and regional planning.

Doctoral programs are available in chemistry (including chemical physics), medical physics and psychology. Doctoral programs also are available in urban services through the School of Education, in public administration through the Center for Public Policy, and Integrative Life Sciences through VCU Life Sciences. The Graduate and Professional Programs Bulletin describes these graduate programs in detail.

Student advising

Seth Sykes

- Director of Academic Advising (2000)
- B.D. 1988 University of St. Andrews, Scotland
- Th.M. 1989 Princeton Theological Seminary
- Ph.D. 1997 Union Theological Seminary

Academic advising is integral to each program of study in the college. Academic advising is an ongoing process that helps students to develop, pursue and achieve their educational and personal goals. The adviser assists students to understand university procedures, interpret general education and major requirements, address academic difficulties, explore majors and connect majors to careers. Student are assigned an academic adviser within their first semester.

Undeclared majors and freshmen receive advising through the Office of Academic Advising. After the freshman year or when the undeclared student declares a major, the department in which the student intends to major assigns a faculty adviser to each student.

Students are responsible for making sure course selections satisfy graduation requirements of the departmental major programs, general requirements of the College of Humanities and Science and general degree requirements of the Academic Campus. Consultation with the adviser, and/or dean,

along with frequent reference to this bulletin and Humanities and Sciences Graduation Worksheets ensure that students meet these responsibilities.

Students also are responsible for familiarizing themselves with academic regulations of the Academic Campus concerning change of major, continuance, etc., as explained in the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

College Success Program

Xochela V. James

Director (1979)
B.S. 1968 Virginia State University
M.S. 1975 Virginia Commonwealth University
Ph.D. 1990 Virginia Commonwealth University

Marilyn R. Day

Assistant Director (1981)
B.S. 1976 Virginia Commonwealth University
M.Ed. 1979 Virginia Commonwealth University
Administration and Supervision Certificate 1979
Virginia Commonwealth University

Wendy Gonzalez-Chapman

Counselor (1987)
B.A. 1983 Ithaca College
M.S. 1985 Virginia Commonwealth University
Gerontology Certificate 1997 Virginia
Commonwealth University

Mark Bassard

Counselor (1999)
B.S. 1981 Virginia State University
M.Ed. 1992 Rutgers University

The mission of the College Success Program is to provide assistance to students that will help them to attain their academic potential and make a successful transition to college. The CSP will focus on the development of student success tools including both retention strategies and incorporation of instructional technology and other intervention methods. The CSP seeks to enhance the success and promote the retention of all students.

The CSP provides services as well as referrals to other support programs. The program provides advising, personal counseling, tutoring, career exploration and a variety of workshops and seminars designed to meet specific student needs. Students may be referred to the program as a condition of their admission to the university. These students will participate in a developmental program during their freshman year. This yearlong experience allows students to

ease into the rigorous demand of university life by improving basic academic skills and personal confidence.

The CSP is comprised of components designed to improve academic performance and enhance persistence. These components include: Learning Communities; Intrusive Academic Advising; Orientation Courses; Peer Mentoring; Tutoring; and special assistance in selected academic courses. Students are invited to visit the CSP at 109 N. Harrison St., telephone (804) 828-1650, or e-mail success@vcu.edu.

Campus Learning Center

Michal Z. Coffey

Director (2003)
A.A. 1997 Simon's Rock College of Bard
B.A. 1999 Mary Baldwin College
M.A. 2001 Texas Tech University

The university offers an extensive range of learning support services that assists students in most general education and introductory courses offered on the Academic Campus. Individual and group tutoring are provided by a cadre of trained and certified undergraduate tutors. In addition, the Supplemental Instruction (SI) program offers peer-facilitated group study sessions to assist students to learn how to integrate study skills with course material in their larger introductory classes.

The Campus Learning Center is located at 109 N. Harrison St.; telephone (804) 828-1650. Students may complete a tutor request form to receive these services that are free of charge.

Tutoring

The University Tutoring Program, sponsored by the Campus Learning Center, is a free service available to full-time VCU students. The program offers peer tutoring to students enrolled in selected required courses. Assessment to determine need in study skills development also is offered. The tutorial program is located at 109 N. Harrison St.; telephone (804) 828-1650.

Educational goals

The ultimate goal of a liberal arts education is to help students develop the abilities to think and continue their learning. These abilities will aid students as they take their

places in a world dominated by change. These abilities also will aid students in their future endeavors as they encounter problems, whether in their personal or professional lives, or in their communities. Graduates of the College of Humanities and Sciences are broadly educated, not simply trained, allowing them to function as understanding participants in events rather than as spectators or even victims of those events.

To achieve this goal, the faculty of the College of Humanities and Sciences has identified the following specific requirements.

- Students should write well, organize their ideas, support them and communicate them clearly and effectively.
- Students should reason logically and be able to quantify experiences.
- Students should have knowledge of the fundamental ideas and methods of the natural sciences.
- Students should be able to analyze ethical conflicts.
- Students should have an understanding of literature and the other arts.
- Students should have a knowledge of American heritage and those of other cultures, along with an introduction to a foreign language.
- Students should have a basic knowledge of human behavior and social, political and cultural institutions.

Graduation requirements

For students majoring in a four-year Bachelor of Arts or Bachelor of Science degree program (including students in the pre-dental, pre-medical, pre-optometry, pre-veterinary and extended teacher preparation program classifications), there are four areas of requirements that the student must complete for graduation:

1. Undergraduate General Education Program requirements (see the "Virginia Commonwealth University" chapter of this bulletin),
2. general education requirements of the College of Humanities and Sciences (see departmental major sections for collateral requirements),
3. departmental major requirements and

4. electives to complete the total of a minimum of 120 credits.

General education requirements

In the following section, specific courses that fulfill general education requirements are described. Approved lists from which students must choose courses to complete particular requirements also are listed in this section.

Specific courses recommended by a department to fulfill one or more of the College of Humanities and Sciences' general education requirements are listed under the degree requirement heading in each departmental section. Students should check these listings.

Major or minor courses may fulfill general education requirements when those courses appear among the following general education requirements or on the approved lists of courses. However, no one course can be used to fulfill two general education requirements, with the exception of courses used to meet the "writing intensive" or "urban environment" requirements.

All Bachelor of Arts and Bachelor of Science degree programs require students to complete a minimum of 120 credits. No more than four of those credits can be physical education/activity courses.

General education requirements for Bachelor of Arts and Bachelor of Science degrees

The purpose of general education courses in the College of Humanities and Sciences is to provide a foundation for lifelong learning among its students. This foundation includes the acquisition of information, the capacity and the propensity to engage in inquiry and critical thinking, the use of various forms of communication, an awareness of the diversity of human experience, an understanding of the natural world, and an appreciation of the responsibilities of people to themselves, to others and to the community.

1. Communicating credits 8 to 12*

- A. Composition and rhetoric. ENGL 101-200 or equivalent, with minimum of "C" grade in each course. All students who have not received credit for first semester freshman composition and rhetoric through AP, IB, dual enrollment or a college course must enroll in ENGL 101.

ENGL 200 is taken in the second semester of sophomore year.

- B. Writing intensive requirement. Two writing intensive (WI) courses. Students must fulfill both of the following:
- i) One writing intensive course within the student's major. See "Approved list A" in the Schedule of Classes each semester. and
 - ii) One writing intensive course from several alternatives or from the major. See "Approved list A" in the Schedule of Classes each semester.

The process of writing takes place in all disciplines. Specific sections of courses will be designated in a variety of disciplines that will provide students with opportunities for substantial writing while at the same time completing a major course or elective.

* This figure assumes six credits in ENGL 101-200 and two to six credits in writing intensive courses.

2. Ethics 3

One course in ethics either within the major or from another department (see "Approved list C").

3. Quantity and form 3 to 6

Proficiency in mathematics through the level of algebra and one course in statistics as specified by the major department. (Check major departmental section of this bulletin.)

- A. Mathematics. Proficiency may be demonstrated through the Placement Test or acquired through completion of MATH 131 Introduction to Contemporary Mathematics or MATH 151 Precalculus Mathematics.

- B. Statistics. One three-credit course chosen from STAT 208 Statistical Thinking or STAT 210 Basic Practice of Statistics. Check departmental major section for required statistics course. Mathematical sciences and computer science majors must take STAT 212 Concepts of Statistics.

Students majoring in physics or the professional sequence in the chemistry major will have the statistics requirement fulfilled through required 300-level mathematics courses as specified by the major.

All students who have not started or completed the mathematics sequence in their curriculum must take the Mathematics Placement Test.

- C. Critical thinking. Critical thinking activities are incorporated in general education courses. In addition, critical thinking activities will be embedded in specific parts of major curricula and courses.

4. Science and technology 7 to 9

- A. Two natural science courses, one from the physical sciences and one from the biological sciences. One of the two courses must include a laboratory (see "Approved list D"). Check departmental major section of this bulletin for required courses to fulfill this requirement.
- B. Computer literacy and information retrieval. Students should be able to understand basic computer concepts in order to accomplish a wide variety of tasks, including gathering information, organizing and analyzing data, synthesizing information, and communicating ideas.
- All students must either:
- i. pass the Computer Proficiency Assessment prior to graduation; or
 - ii. successfully complete a computer literacy course (three credits).

5. Civilization 8 to 9

Courses dealing with the origin of the modern world, 20th-century United States and the contemporary interdependent world.

Students must take one course (three credits) from each of the following areas (nine credits total) but no more than six credits in any one discipline: or take two four credit interdisciplinary courses (eight credits total) that combine elements of A, B and C below.

- A. Historical and cultural origins (see "Approved list G")
- B. American (U.S.) studies (see "Approved list H")
- C. Global studies (see "Approved list I")

6. Foreign language 0 to 8

Completion of a foreign language through the 102 level or equivalent course or by placement. English, history and political science majors require competency through the intermediate level (202 or 205) or 0-14 credits. (Check with the Department of Foreign Languages for availability of the intermediate level of the language.)

Students may present American Sign Language courses in fulfillment of the foreign language requirement.

- A. Freshmen who wish to continue in their high school language will be given a placement test to determine the level at which they will begin language study for credit.

Students desiring to begin study of a language different than the high school language need not take the placement test and may begin with the elementary (101) course for credit.

- B. Students transferring from other colleges and universities with advanced placement (credit)

or advanced standing through placement will receive credits as granted by the other institutions and should register for the next course in the sequence. Transfer students who have not begun foreign language study at the collegiate level and who wish to continue study with their high school language are subject to the provisions of the previous paragraph.

C. New freshmen and transfer students who qualify through the elementary level (102) of a foreign language on the placement test (or the 202 level for English, history or political science majors) receive no semester credit but have satisfied the language requirement.

7. Visual and performing arts 2 to 4

One course in the visual or performing arts (see "Approved list E").

8. Literature and social sciences 9 to 10

A. Literature 3
One literature course (see "Approved list F")

B. Human behavior 6 to 7
Two courses in different disciplines focusing on human behavior (see "Approved list J");

9. Urban environment 3

Students attending a public, urban university should have some understanding and appreciation of the urban environment, the challenges and opportunities that face cities today, and the influences of cities on human activities. The three-credit requirement dealing with aspects of modern urban life may be completed within the major, through general education courses or as an elective. With a few exceptions, the course will be taken at VCU during the last 60 credits (see "Approved list K").

Major requirements

See departmental curriculum for exact number of credits (30 credit minimum).

Elective requirements

Elective courses to complete the total required 120 credits.

Approved lists for students entering fall 1997 and thereafter

Approved list A – Written communications

(See course descriptions in the bulletin for any prerequisites.)

Freshman English

ENGL 101 Writing and Rhetoric Workshop I
ENGL 200 Writing and Rhetoric Workshop II
(Taken in second semester of sophomore year.)

Writing intensive courses

Anthropology

ANTH 301/BIO 341 Human Evolution (not applicable to biology major)
ANTH 302 Archeological Theory
ANTH 303 Archeological Methods and Research Design
ANTH 315 Anthropological Field Methods and Research Design
ANTH/INTL 348 South American Ethnography
ANTH/INTL 349 Rethinking a Continent: Latin America
ANTH/INTL 350 Rethinking a Continent: Europe
ANTH/RELS/INTL 425 Religion, Magic and Witchcraft

Biology

BIOL 300 Biotechniques Laboratory (.5 WI credit)
BIOL 309 Entomology (.5 WI credit)
BIOZ 310L Laboratory in Genetics (.5 WI credit)
BIOZ 311L Animal Physiology Laboratory (.5 WI credit)
BIOZ 312L Invertebrate Zoology Laboratory (.5 WI credit)
BIOZ 317L Ecology Laboratory (.5 WI credit)
BIOL 320 Biology of the Seed Plant (.5 WI credit)
BIOZ 321L Plant Development Laboratory
BIOL 341/ANTH 301 Human Evolution (not applicable to biology major)
BIOL 392 Introduction to Research
BIOL 401 Applied and Environmental Microbiology
BIOL 445 Neurobiology and Behavior (.5 WI credit)
BIOL 518 Plant Ecology (.5 WI credit)
BIOL 522 Evolution and Speciation
BIOL 541 Laboratory in Molecular Genetics (.5 WI credit)

Chemistry

CHEZ 303L Physical Chemistry Laboratory I
CHEZ 409L Instrumental Analysis Laboratory

Criminal justice

CRJS/ENGL 302 Legal Writing
CRJS 358 Lawyer's Role in the Justice System
CRJS 480 Senior Seminar

Economics

ECON 302 Macroeconomic Theory

English

ENGL 301 English Studies: Reading Literature
ENGL/CRJS 302 Legal Writing
ENGL 303 Writing in the Workplace
ENGL 304 Advanced Writing
ENGL/MGMT 327 Business and Technical Report Writing
ENGL/RELS 361 The Bible as Literature
ENGL/ENVS 385 Nature Writing
ENGL 490 Senior Seminar in English (any topic)

Environmental studies

ENVS/ENGL 385 Nature Writing
ENVS 490 Topics in Environmental Studies

French

FREN 300, 301 Advanced Grammar and Writing

Forensic science

FRSC 375 Forensic Evidence, Law and Criminal Procedure

Geography

GEOG/INTL 303 (formerly GEOG 307/INTL 308 World Regions)
GEOG/URSP 306 Urban Economic Geography

German

GRMN 301 Advanced Grammar and Writing

History

HIST 300 Introduction to Historical Study
HIST 369 American Constitutional and Legal Development
HIST 490 Seminar in History (any topic)

Humanities and sciences

HUMS 591 Arts in Contemporary Britain

Interdisciplinary science

INSC 301 Investigatory Mathematics and Science

International studies

INTL/GEOG 303 (formerly INTL 308/GEOG 307 World Regions)
INTL/ANTH 348 South American Ethnography
INTL/ANTH 349 Rethinking a Continent: Latin America
INTL/ANTH 350 Rethinking a Continent: Europe
INTL/POLI 365 International Political Economy
INTL/RELS/WMNS 372 Global Women's Spirituality
INTL/RELS/PHIL 412 Zen Buddhism
INTL/ANTH/RELS 425 Religion, Magic and Witchcraft
INTL/POLI 468 Seminar on Comparative Foreign Policy
INTL 490 Seminar in International Issues

Mass communications

MASC 203 Writing for Mass Media
MASC 333 Public Relations Writing
MASC 363 Electronic Media Writing I
MASC 403 Advanced Reporting
MASC 404 Specialized Project Reporting

Mathematics

MATH 490 Mathematical Expositions
MATH 530 The History of Mathematics
MATH 531 Expositions in Modern Mathematics

Management/business

MGMT/ENGL 327 Business and Technical Report Writing

Operations research

OPER/STAT 490 Communications in Statistics and Operations Research

Philosophy

PHIL 301 Mind and Reality
 PHIL 302 Reason and Knowledge
 PHIL 303 Philosophy of Language
 PHIL 320 Philosophy of Law
 PHIL 335 Social and Political Philosophy
 PHIL/INTL/RELS 412 Zen Buddhism
 PHIL 490 Seminar in Philosophy

Physics

PHYS 450 Senior Physics Laboratory

Political science

POLI/WMNS 316 Women and the Law
 POLI 341, 342 History of Political Thought
 POLI/INTL 365 International Political Economy
 POLI/INTL 468 Seminar on Comparative Foreign Policy
 POLI 490 Senior Seminar: Political Science Capstone Course

Psychology

PSYC 317 Experimental Methods

Religious studies

RELS/ENGL 361 The Bible as Literature
 RELS/WMNS 371 Islam and Women
 RELS/WMNS/INTL 372 Global Women's Spirituality
 RELS/PHIL/INTL 412 Zen Buddhism
 RELS/INTL/ANTH 425 Religion, Magic and Witchcraft
 RELS 490 Seminar in Religious Studies

Sociology

SOCY 402 Sociological Theory
 SOCY 436 Work and Management in Modern Society

Spanish

SPAN 300, 301 Advanced Grammar and Writing

Statistics and operations research

STAT/OPER 490 Communications in Statistics and Operations Research

Urban studies

URSP/GEOG 306 Urban Economic Geography

Women's studies

WMNS/POLI 316 Women and the Law
 WMNS/RELS 371 Islam and Women
 WMNS/INTL/RELS 372 Global Women's Spirituality
 WMNS 401 Topical Senior Seminar

Approved list B – Mathematics and statistics

(See course descriptions in the bulletin for any prerequisites.)

MATH 131 Introduction to Contemporary Mathematics

MATH 151 Precalculus Mathematics
 MATH 200 Calculus with Analytic Geometry
 STAT 208 Statistical Thinking
 STAT 210 Basic Practice of Statistics
 STAT 212 Concepts of Statistics (for science majors only)

Approved list C – Ethical principles

(See course descriptions in the bulletin for any prerequisites.)

International studies

INTL 341/RELS 340 Global Ethics and the World's Religions

Mass communications

MASC 290 Ethical Problems in Mass Media

Philosophy

PHIL 211 History of Ethics
 PHIL 212 Ethics and Applications
 PHIL 213 Ethics and Health Care
 PHIL 214 Ethics and Business

Political science

POLI 107 Political Theory

Religious studies

RELS 340/INTL 341 Global Ethics and the World's Religions

Sociology

SOCY 445 Medical Sociology

Approved list D – Natural sciences

(See course descriptions in the bulletin for any prerequisites.)

Biological sciences

BIOL 101 Biological Concepts
 BIOZ 101L Biological Concepts Laboratory
 BIOL/ENVZ 103 Environmental Science
 BIOZ/ENVZ 103L Environmental Science Laboratory
 BIOL 151 Introduction to Biological Science I (for biology and other majors)
 BIOZ 151L Introduction to Biological Science Laboratory I (for biology and other science majors)
 BIOL 152 Introduction to Biological Science II (for biology and other science majors)
 BIOZ 152L Introduction to Biological Science Laboratory II (for biology and other science majors)

Physical sciences

Chemistry
 CHEM 101 General Chemistry (for science majors)
 CHEZ/FRSZ 101L General Chemistry Laboratory (for science majors)
 CHEM 110 Chemistry and Society
 CHEZ 110L Chemistry and Society Laboratory
 CHEM 112 Chemistry in the News

Forensic science

FRSZ/CHEZ 101L General Chemistry Laboratory (for science majors)

Physics

PHYS 101 Foundations of Physics
 PHYZ 101L Foundations of Physics Laboratory
 PHYS 103 Elementary Astronomy
 PHYZ 103L Elementary Astronomy Laboratory
 PHYS 107 Wonders of Technology
 PHYS 202 General Physics II (for science majors)
 PHYS 208 University Physics II (for science majors)

Approved list E – Visual and performing arts

A. Basic level courses designed specifically for non-arts majors.

Art education

ARTE 121-122 The Individual in the Creative Process
 ARTE 301-302 Art for Elementary Teachers
 ARTE 408 Two-dimensional Art Experiences
 ARTE 409 Three-dimensional Art Experiences

Art foundation

ARTF 121-122 Introduction to Drawing

Dance and choreography

DANC 171, 172 T'ai Chi
 DANC 183, 184 Introduction to Modern Dance Technique
 DANC 313 Dance in World Cultures

Interior design

IDES 103-104 Introductory Studio Course

Music

MHIS 105-106 Introduction to Writing Music
 MHIS 243 Music Appreciation

Sculpture

SCPT 209 Introduction to Sculpture

Theatre

THEA 107, 108 Introduction to Stage Performance

B. Basic-level courses open to both art and non-art majors.

African American studies

AFAM/DANC 121, 122 Tap Technique I
 AFAM/DANC 126, 127 African-Caribbean Dance I
 AFAM/MHIS 250 Introduction to African-American Music
 AFAM/THEA 303 Black Theatre
 AFAM 350/MHIS 350/INTL 370 Studies in the Music of the African Continent and Diaspora

Art education

ARTE 353 Art and Perceptual Communication

Art history

ARTH 103, 104 Survey of Western Art
 ARTH 145, 146 Survey of Asian Art
 ARTH 207 Introduction to Non-Western Art
 ARTH 270, 271 History of the Motion Picture

Crafts

CRAF 201-202 Metalsmithing
 CRAF 211-212 Jewelry
 CRAF 221 Woodworking Techniques
 CRAF 241 Ceramics: Handbuilding
 CRAF 242 Ceramics: Wheelthrowing
 CRAF 251, 252 Introduction to Glassworking
 CRAF 261, 262 Beginning Textiles

Dance and choreography

DANC 103-104 Survey of Dance History
 DANC 105-106 Improvisation
 DANC 111-112 Ballet Technique I
 DANC 114, 214, 314, 414 Summer Dance
 Workshop
 DANC/AFAM 121, 122 Tap Technique I
 DANC/AFAM 126, 127 African-Caribbean
 Dance I
 DANC 141, 142 Ballroom Dancing
 DANC 243 Dynamic Alignment
 DANC 291 Topics in Dance
 DANC 313 Dance in World Cultures

Fashion design and merchandising

FASH 240 Survey of the Fashion Industry I

Interior design

IDES 103-104 Introductory Studio Course
 IDES 231 Fundamentals of Interior Design

International studies

INTL 370/AFAM 350/MHIS 350 Studies in the
 Music of the African Continent and Diaspora

Music

APPM 300-level Private Instruction: Principal
 and Secondary Performing Mediums
 APPM 370 Large Ensembles (auditions required
 for all sections)
 APPM 390 Small Ensembles (auditions required
 for all sections)
 MHIS 120 Introduction to Musical Styles
 MHIS/AFAM 250 Introduction to African-
 American Music
 MHIS 350/INTL 370/AFAM 350 Studies in the
 Music of the African Continent and Diaspora

Theatre

THEA 103 Stagecraft
 THEA 104 Costume Construction
 THEA 211-212 Introduction to Drama
 THEA 229 Introduction to Lighting Design
 THEA/AFAM 303 Black Theatre

**C. Advanced-level courses open to both arts
 and non-arts majors.** Some require special
 permission/audition.

Dance and choreography

DANC 221, 222 Tap Technique II
 DANC 319, 320 Video/Choreography Workshop
 DANC 343 Body Imagery

Approved list F – Literature**English**

ENGL 201 Western World Literature I
 ENGL 202 Western World Literature II
 ENGL 203 British Literature I
 ENGL 204 British Literature II
 ENGL 205 American Literature I
 ENGL 206 American Literature II
 ENGL/INTL 211 Contemporary World Literature
 ENGL 215 Readings in Literature
 ENGL 216 Readings in Narrative
 ENGL/WMNS 236 Women in Literature
 ENGL 241 Shakespeare's Plays
 ENGL 291 Topics in Literature

International studies

INTL/ENGL 211 Contemporary World Literature

Women's studies

WMNS/ENGL 236 Women in Literature

**Approved list G – Historical
 and cultural origins****African American studies**

AFAM/HIST 105 Survey of African History I
 AFAM/HIST 106 Survey of African History II

Anthropology

ANTH 105/INTL 104 Introduction to Archaeology
 ANTH/GEOG 312 History of Human Settlement

Foreign language

FRLG/INTL 203 Language and Identity

Geography

GEOG/ANTH 312 History of Human Settlement

History

HIST 101 Survey of European History I
 HIST 102 Survey of European History II
 HIST/AFAM 105 Survey of African History I
 HIST/AFAM 106 Survey of African History II
 HIST 107 Survey of East Asian Civilizations
 HIST 108 Survey of East Asian Civilizations
 HIST 109 Survey of Latin American History I
 HIST 110 Survey of Latin American History II

International studies

INTL 104/ANTH 105 Introduction to Archaeology
 INTL/FRLG 203 Language and Identity
 INTL/RELS 311 Religions of the World I
 INTL/RELS 312 Religions of the World II

Philosophy

PHIL 103 Ancient Greek and Medieval Western
 Philosophy
 PHIL 104 Modern Western Philosophy

Religious studies

RELS/INTL 311 Religions of the World I
 RELS/INTL 312 Religions of the World II

**Approved list H – American
 studies (United States)****American studies**

AMST 394 Perspectives in American Studies

Foreign language

FRLG/INTL 204 Language and Groups in the United
 States

History

HIST 103 Survey of American History I
 HIST 104 Survey of American History II

International studies

INTL/FRLG 204 Language and Groups in the United
 States

Political science

POLI 103 U.S. Government

Religious studies

RELS 334 Religion in Contemporary America

Approved list I – Global studies**Anthropology**

ANTH/INTL 455 Anthropology of Development and
 Globalization (INTL 101 prerequisite)

Geography

GEOG 303, 304/INTL 303, 304 World Regions

International studies

INTL 101 Human Societies and Globalization
 INTL/POLI 105 International Relations
 INTL/MASC 151 Communications Technology and
 Global Society
 GEOG 303, 304/INTL 303, 304 World Regions
 INTL/SOCY 330 Global Societies: Trends and Issues
 INTL/POLI 365 International Political Economy
 INTL/ANTH 455 Anthropology of Development and
 Globalization (INTL 101 prerequisite)

Mass communications

MASC/INTL 151 Communications Technology and
 Global Society

Political science

POLI/INTL 105 International Relations
 POLI 109 Comparative Politics
 POLI/INTL 365 International Political Economy

Sociology

SOCY/INTL 330 Global Societies: Trends and Issues
 SOCY 430 Politics, Power and Ideology

Approved list J – Human behavior**Anthropology**

ANTH/INTL 103 Introduction to Anthropology
 ANTH/INTL 348 South American Ethnography
 (ANTH 103 prerequisite)
 ANTH/INTL 349 Rethinking a Continent: Latin
 America (ANTH 103 prerequisite)

Economics

ECON 101/INTL 102 Introduction to Political Economy
ECON 203 Introduction to Economics

Geography

GEOG 102 Introduction to Human Geography

International studies

INTL 102/ECON 101 Introduction to Political Economy
INTL/ANTH 103 Introduction to Anthropology
INTL/ANTH 348 South American Ethnography (ANTH 103 prerequisite)
INTL/ANTH 349 Rethinking a Continent: Latin America (ANTH 103 prerequisite)

Mass communications

MASC 101 Mass Communications

Psychology

PSYC 101 Introduction to Psychology

Sociology

SOCY 101 General Sociology
SOCY 340 Self and Society

Social science

SOCS 340 Human Sexuality

Women's studies

WMNS 201 Introduction to Women's Studies

Approved list K – Urban environment

(See course descriptions in the bulletin for any prerequisites.)

Anthropology

ANTH/GEOG 312 History of Human Settlement
ANTH 450/ENGL 454/INTL 454 Cross-cultural Communication

Criminal justice

CRJS 181 Justice System Survey
CRJS 305 Policing Theories and Practice
CRJS 352 Crime and Delinquency Prevention
CRJS 468 Economic and Organized Crime

Economics

ECON/URSP 321 Urban Economics

English

ENGL 454/INTL 454/ANTH 450 Cross-cultural Communication

Environmental studies

ENVS 491 Topics in Environmental Studies: Ecology of Urban Environments (only this topic)

French

FREN 301 Advanced Grammar and Writing

Foreign language

FRLG 345/URSP 350/INTL 345 Great Cities of the World
FRLG 490 Foreign Languages Urban Internship

Geography

GEOG/URSP 302 Land Use Capability
GEOG/URSP 306 Urban Economic Geography
GEOG/ANTH 312 History of Human Settlement
GEOG/INTL/URSP 340 World Cities Outside of North America

Humanities and sciences

HUMS 391 Special Topics in the Humanities and Sciences: Science Education in the Urban Environment (only this topic)

International studies

INTL/URSP/GEOG 340 World Cities Outside of North America
INTL 345/FRLG 345/URSP 350 Great Cities of the World
INTL 454/ANTH 450/ENGL 454 Cross-cultural Communication

Linguistics

LING/SPAN 402 Language Issues in the Spanish-speaking World

Mass communications

MASC 303 General Assignment Reporting
MASC 403 Advanced Reporting
MASC 404 Specialized Project Reporting
MASC 439 Public Relations Campaigns
MASC 464 Electronic Media Writing III

Physics

PHYS 291 Topics in Physical Science: Physics Outreach – Richmond Elementary Schools (only this topic)

Political science

POLI 321 City Politics

Psychology

PSYC 493 Fieldwork: Youth in Corrections (only this topic)
PSYC 493 Fieldwork: Urban Environment (only this topic)
PSYC 493 Fieldwork: Mentoring Children at Risk (only this topic)

Social work

SLWK 422 Social Welfare Legislation and Services

Sociology

SOCY 302 Contemporary Social Problems
SOCY 327 Urban Sociology
SOCY 493 Field Research Internship: Youth in Corrections (only this topic)

Spanish

SPAN/LING 402 Language Issues in the Spanish-speaking World

Urban studies

URSP 116 Introduction to the City
URSP 245 Housing and Community Revitalization
URSP 261 Design of the City
URSP/GEOG 302 Land Use Capability
URSP 304 Urban Social Systems
URSP/GEOG 306 Urban Economic Geography
URSP 315 The Evolution of American Cities
URSP 316 Urban Life in Modern America
URSP/ECON 321 Urban Economics
URSP/GEOG/INTL 340 World Cities Outside of North America
URSP 350/INTL 345/FRLG 345 Great Cities of the World

Approved lists – Students entering prior to fall 1997

See the VCU Undergraduate Bulletin 2003-04 for the final approved list for students entering VCU prior to fall 1997.

Humanities and Sciences Undeclared Program

Exploratory programs for students with an undeclared major

Seth Sykes

Director of Academic Advising (2000)
B.D. 1988 University of St. Andrews, Scotland
Th.M. 1989 Princeton Theological Seminary
Ph.D. 1997 Union Theological Seminary

For those students seeking admission to VCU who have not declared their major at the time of their acceptance or enrollment, the university recommends that these students enroll in the College of Humanities and Sciences. Students admitted into the "Humanities and Sciences Undeclared" category are encouraged to select a major by the end of two years of study. Students must declare a major within one of the university's schools no later than the semester in which they complete 60 credits. The advising program is flexible enough to suit the interests of any student with an undeclared major, yet the courses recommended are basic to a variety of majors.

The student with an undeclared major is assigned an adviser in the Office of Academic Advising with whom the student must meet at least once prior to advanced registration each semester. Adviser and student assess the general academic direction of the student's interests and then plan a program of studies to assist the student in defining his or her academic objectives more clearly.

The following lists are of freshman- and sophomore-level courses from which undeclared students can choose to explore various fields.

As students who have not declared their majors begin to make decisions about a major, they should consult this bulletin for that major's specific course requirements that should be taken in the freshman and sophomore years.

Suggested courses for the College of Humanities and Sciences for students with undeclared majors among various schools

A. Most transferable courses

BIOL 101, BIOZ 101L Biological Concepts and Laboratory (non-science)
 BIOL/ENVS 103 and BIOZ/ENVZ 103L Environmental Science and Laboratory (non-science)
 BIOL 151, 152 and BIOZ 151L, 152L Introduction to Biological Science and Laboratories I, II (science majors)
 CHEM 101-102 General Chemistry (science majors)
 CHEZ/FRSZ 101L-102L General Chemistry Laboratory I, II (science majors)
 CHEM 110, CHEZ 110L Chemistry and Society and Laboratory (non-science)
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II
 ENGL 201 Western World Literature I
 ENGL 202 Western World Literature II
 ENGL 203 British Literature I
 ENGL 204 British Literature II
 ENGL 205 American Literature I
 ENGL 206 American Literature II
 HIST 101, 102 Survey of European History
 HIST 103, 104 Survey of American History
 MASC/INTL 151 Communications Technology and Global Society
 MATH 131 Introduction to Contemporary Mathematics (placement test required)
 MATH 151 Precalculus Mathematics (placement test required)
 PHYS 103 Elementary Astronomy
 PHYS 107 Wonders of Technology (non-science)
 PHYS 207-208 and PHYZ 207L-208L University Physics and Laboratories (science majors)
 POLI/INTL 105 International Relations
 POLI 109 Comparative Politics
 PSYC 101 Introduction to Psychology
 SOCY 101 General Sociology
 SPCH 121 Effective Speech

B. Second level of most transferable courses

AFAM 103 Introduction to African-American Studies
 ANTH/INTL 103 Introduction to Anthropology
 ARTH 103, 104 Survey of Western Art

PHIL 103 Ancient Greek and Medieval Western Philosophy
 PHIL 104 Modern Western Philosophy
 POLI 103 U.S. Government

If school is probably School of the Arts (see the "School of the Arts" chapter of this bulletin for additional information)

APPM 165, 166 Aural Skills I, II
 APPM 193 Class Lessons in Voice
 APPM 195 Class Lessons in Guitar
 APPM 197 Class Lessons in Organ
 APPM 300-level Private Instruction: Principal and Secondary Performing Mediums
 APPM 370 Large Ensembles
 APPM 390 Small Ensembles
 ARTF 121-122 Introduction to Drawing
 ARTH 103, 104 Survey of Western Art
 CRAF 201-202 Metalsmithing
 CRAF 211-212 Jewelry
 CRAF 241 Ceramics: Handbuilding
 CRAF 242 Ceramics: Wheelthrowing
 CRAF 261, 262 Beginning Textiles
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II
 FASH 240 Survey of the Fashion Industry I
 IDES 103-104 Introductory Studio Course
 IDES 231 Fundamentals of Interior Design
 MHIS 105-106 Introduction to Writing Music
 MHIS 117 Computers in Music
 MHIS 201 Acoustics
 PAPR 155, 156 Drawing and Painting, Basic
 PAPR 255-256 Drawing and Painting, Basic
 PAPR 355, 356 Drawing and Painting, Intermediate
 THEA 307-308 History of the Theatre

If college is probably College of Humanities and Sciences (see the "College of Humanities and Sciences" chapter of this bulletin for additional information)

ANTH/INTL 103 Introduction to Anthropology
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II
 Foreign Language (placement test required if continuing in high school language)
 HIST 101, 102 Survey of European History
 HIST 103, 104 Survey of American History
 HIST/AFAM 105, 106 Survey of African History
 HIST 107, 108 Survey of East Asian Civilizations
 HIST 109, 110 Survey of Latin American History
 INTL 101 Human Societies and Globalization
 Natural science – One biological science course and one physical science course with a laboratory in one of the two.
 BIOL 101 Biological Concepts
 BIOL 102 Science of Heredity
 BIOL/ENVS 103 Environmental Science
 BIOL 151 Introduction to Biological Science (if planning biology major)
 CHEM 101 General Chemistry and laboratory (for science majors)
 CHEM 110 Chemistry and Society
 PHYS 101 Foundations of Physics

PHYS 103 Elementary Astronomy
 PHYS 107 Wonders of Technology
 MATH 131 Introduction to Contemporary Mathematics or MATH 151 Precalculus Mathematics (placement test required)
 PHIL 103 Ancient Greek and Medieval Western Philosophy
 PHIL 104 Modern Western Philosophy
 POLI 103 U.S. Government
 POLI/INTL 105 International Relations
 POLI 109 Comparative Politics
 POLI 201 Introduction to Politics
 PSYC 101 Introduction to Psychology
 RELS 101 Introduction to Religious Studies
 SOCY 101 General Sociology

If school is probably School of Business (see the "School of Business" chapter of this bulletin for additional information)

ACCT 203-204 Introduction to Accounting
 ECON 210-211 Principles of Economics
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II
 MGMT 121 The Business Environment
 MGMT 171 Mathematical Applications for Business (placement test required and MATH 141 may be required as prerequisite)
 MGMT 212 Differential Calculus and Optimization for Business (placement test required)
 SPCH 121 Effective Speech
 Elective in history or political science
 Elective in a natural science
 Elective in sociology, psychology or anthropology
 Elective in the arts

If school is probably School of Education (see the "School of Education" chapter of this bulletin for additional information)

BIOL 101 Biological Concepts
 BIOZ 101L Biological Concepts Laboratory
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II
 English 200-level literature
 HIST 103 Survey of American History
 HPEX 230 History and Philosophy of Health and Physical Education
 MATH 131 Introduction to Contemporary Mathematics or MATH 141 Algebra with Applications
 PSYC 101 Introduction to Psychology
 SOCY 101 General Sociology
 SPCH 121 Effective Speech
 STAT 208 Statistical Thinking

If school is probably School of Social Work (see the "School of Social Work" chapter of this bulletin for additional information)

ANTH/INTL 103 Introduction to Anthropology
 BIOL 101 Biological Concepts
 BIOZ 101L Biological Concepts Laboratory
 ENGL 101 Writing and Rhetoric Workshop I
 ENGL 200 Writing and Rhetoric Workshop II

MATH 131 Introduction to Contemporary Mathematics or MATH 141 Algebra with Applications
PSYC 101 Introduction to Psychology
STAT 208 Statistical Thinking or STAT 210 Basic Practice of Statistics
SOCY 101 General Sociology
Social/behavioral science electives, six credit hours (political science, economics, history)
Electives, six credit hours

Undergraduate credit by examination

Recognizing that VCU enrolls students of varying backgrounds and experiences, the college provides students limited opportunities to accelerate their education through “credit by examination.” A full description of this program appears in the “Admission to the University” chapter of this bulletin.

University Honors Program

The VCU Honors Program, a challenging and exciting program with high academic standards, was established to meet the needs of academically talented undergraduate students. The University Honors Program offers students the opportunity to expand their creative and intellectual horizons. Students in this program benefit from small classes that promote greater interaction between students and faculty, and among the students themselves.

Undergraduates from the college and all other schools on VCU’s Academic Campus are invited to apply to this program, if they meet eligibility requirements. For a detailed description of qualifications and requirements, see the “Admission to the University” chapter of this bulletin.

Course descriptions and numbering

Courses designated 100 and 200 are undergraduate lower-level courses offered primarily to undergraduate students; 300 and 400 courses are undergraduate upper-level courses designed for advanced undergraduates.

Courses at the 500 level are open to advanced undergraduate students with the consent of the department offering the course. Credit is applicable to only one degree.

L. Douglas Wilder School of Government and Public Affairs

Robert Holsworth

Director and Professor (1978)
B.A. 1972 Seton Hall University
Ph.D. 1978 University of North Carolina at Chapel Hill

William W. Newmann

Assistant Professor (1994)
B.A. 1983 University of Pennsylvania
M.A. 1985 Drew University

Judyth L. Twigg

Assistant Professor (1992)
B.S. 1984 Carnegie Mellon University
M.A. 1986 University of Pittsburgh
Ph.D. 1994 Massachusetts Institute of Technology

The L. Douglas Wilder School of Government and Public Affairs is a creative, interdisciplinary grouping of disciplines in the social sciences and professional arenas that will provide students with the knowledge, skills and experience necessary for success whether in careers in the public service or in advanced professional or graduate study.

To achieve this mission, the School of Government and Public Affairs actively fosters and promotes a wide range of endeavors, including the establishment of interdisciplinary undergraduate and graduate programs and develops close ties with programs such as African American Studies, Women’s Studies, the Center for Public Policy, the Center for Environmental Studies, the Nonprofit Enterprise Institute and other units throughout the university.

Criminal Justice

Deborah Brock

Program Coordinator (2001)
B.S. 1976 George Washington University
M.A. 1978 George Washington University
Ph.D. 2000 Virginia Commonwealth University

The major objective of this degree program is to prepare students for effective professional careers in criminal justice, forensic crime scene investigation, public service and other helping professions, and/or prepare them to pursue studies in law and other related graduate programs. Career opportunities are available in federal, state, local and private justice-related endeavors.

These careers include law enforcement, crime scene investigation, juvenile justice,

corrections and the courts. This department also prepares students wishing to enter law school and those wishing to pursue graduate studies in criminal justice or in several of the human services, usually related to justice. This department offers and encourages in-service justice employees and others to enhance their professional career development through higher education.

Students majoring in criminal justice receive a broad educational background, professionally oriented courses in their special area of interest and various skill courses designed to enhance the student’s career opportunities. Through core courses and electives in the major approved by the student’s adviser, students have the opportunity to orient their course work to fit their educational objectives and career plans.

It is essential that students seek and follow the advice of their adviser in the progression of the core courses, the selection of criminal justice electives and in the identification of complimentary courses in other disciplines that can benefit the student and assist in the accomplishment of career goals. Whether the student is interested in general criminal justice, policing, crime scene investigation, legal studies, juvenile justice or corrections, faculty and advisers can assist in identifying the appropriate curriculum.

Degree requirements – Bachelor of Science in Criminal Justice

The Bachelor of Science in Criminal Justice requires a minimum of 120 credits, including 36 credits in criminal justice courses. Students will complete 18 credits in core courses and 18 credits in either the justice or the forensic crime scene investigation concentration.

Criminal justice core – 18 credits

Required courses for all criminal justice majors.
CRJS 181 Justice System Survey
CRJS 260 Criminal Law
CRJS 355 Foundations of Criminal Justice
CRJS 380 Research Methods in Criminal Justice
CRJS 475 Case Studies in Criminal Procedure
CRJS 480, 492 or 493 application component

Justice concentration requirements – 18 credits

This concentration is offered for those students who are interested in a broad theoretical and practical education in the field of criminal justice.

Students in this concentration are required to complete the criminal justice core as well as any six criminal justice electives.

Forensic crime scene investigation concentration requirements – 18 credits

This concentration is offered for those students who are interested in careers in crime scene investigation at the local, state or federal levels.

Students in the concentration are required to complete the criminal justice core as well as six additional courses specified below.

Required courses for all forensic crime scene investigation concentration students:

- CRJS 320 Principles of Criminal Investigation
- CRJS 370 Criminalistics and Crime Analysis
- CRJS 373 Crime Scene Evidence, Law and Trial Procedure
- CRJS 425 Violent crime Science Investigation
- CRJS 450 Computer Forensic Investigation
- CRJS 300- or 400-level criminal justice elective

Minor in criminal justice

A minor in criminal justice requires a minimum of 18 credits. Students desiring a minor in criminal justice must complete, with a “C” average overall, each of the following courses:

- CRJS 181 Justice System Survey
- CRJS 260 Criminal Law
- CRJS 355 Foundations of Criminal Justice
- CRJS 475 Case Studies in Criminal Procedure
- Two criminal justice electives*

* CRJS 492 and 493 are not available to those minoring in criminal justice.

Master of Science in Criminal Justice

The graduate degree program in criminal justice is designed to provide advanced educational preparation for practitioners and students pursuing careers in criminal justice or forensic science. Such preparation includes understanding appropriate theoretical positions and concepts, and developing necessary professional skills. The master's degree requires 36 credit hours. See the Graduate and Professional Programs Bulletin for a more detailed description of this program and the post-baccalaureate certificate program.

Courses in criminal justice (CRJS)

CRJS 180 Introduction to Forensic Science

Semester course; 1 lecture hour. 1 credit. Forensic Science is the application of scientific methods to crime, investigation and criminal identification. This short course will present the nature and scope of the field of forensic science and the precise ways in which law and science intersect. The scientific basis for behavioral prediction and classification (profiling) will be reviewed as will the natural science skills required for those entering the field, and career opportunities will be described.

CRJS 181 Justice System Survey

Semester course; 3 lecture hours. 3 credits. Comprehensive overview of criminal justice; assesses the extent of crime; reviews law enforcement, judicial and correctional processes at all levels of government; discusses history and philosophy of public safety; evaluates career opportunities.

CRJS 252 Introduction to the Juvenile Justice System

Semester course; 3 lecture hours. 3 credits. This survey course studies all segments of juvenile justice and special procedures designed for young persons; recognizes the importance of proper handling of the juvenile by the police and the courts; reviews recent developments in juvenile rehabilitation.

CRJS 253 Introduction to Corrections

Semester course; 3 lecture hours. 3 credits. A survey of societal responses to the offender; traces the evolution of practices based on philosophies of retribution, punishment and rehabilitation; reviews contemporary correctional activities and their relationships to other aspects of the criminal justice system; introduces the emerging area of correctional programming within the community.

CRJS 254 Introduction to Policing

Semester course; 3 lecture hours. 3 credits. A survey of different facets of law enforcement including the activities of public police agencies and private security organizations. Assesses changes in law enforcement philosophy and practices, police relationships with the public and the political arena and anticipated future trends in policing.

CRJS 255 Introduction to Legal Studies

Semester course; 3 lecture hours. 3 credits. Overview of the American legal system, processes, terminology; analysis of historical and philosophical bases of law. Examines the systems that adjudicate criminal and civil law; considers the role of law in the functioning of the justice system.

CRJS 260 Criminal Law

Semester course; 3 lecture hours. 3 credits. Deals with the definition and processing of substantive offenses along with the bases of criminal liability, defenses and complicity. Covers the scope of individual rights under due process, emphasizing arrest, interrogations, search and seizure.

CRJS 300 Forensic Criminology

Semester course; 3 lecture hours. 3 credits. The intersection of law, predictions of dangerousness, mental disorder and crime. Behavioral prediction, classification and the development of typologies of offenses and offending will be considered. Issues in the use of clinical and statistical prediction methods in criminal justice will be presented.

CRJS 302/ENGL 302 Legal Writing

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 200 and three credits in 200-level literature courses (or equivalent). Intensive practice in writing on subjects related to law or legal problems. Emphasis on organization, development, logical flow and clarity of style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

CRJS 305 Policing Theories and Practice

Semester course; 3 lecture hours. 3 credits. An overview of the nature and application of law enforcement

theory. Examines the theoretical underpinnings of a variety of law enforcement practices, with emphasis on evolving trends.

CRJS 320 Principles of Criminal Investigation

Semester course; 3 lecture hours. 3 credits. Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene management, searching, collecting, handling and preserving of evidence as applied to forensic crime scene investigation.

CRJS 324 Courts and the Judicial Process

Semester course; 3 lecture hours. 3 credits. Examines the systems that adjudicate criminal and civil law; includes constitutional authority, jurisdictions and trial processes, with particular emphasis on reform in court administration, disposition without trial and sentencing.

CRJS 350 Evaluation and Treatment of the Offender

Semester course; 3 lecture hours. 3 credits. An analysis of the issues and procedures involved in evaluating individual differences in offenders and among classes of offenders; current diagnostic and treatment methods are discussed; introduces the student to case analysis and correctional counseling techniques. Includes analysis of evaluation and treatment resources external to corrections.

CRJS 351 Community-based Correctional Programs

Semester course; 3 lecture hours. 3 credits. A comprehensive review of various community-based rehabilitation and treatment efforts; includes analysis of probation, parole, work release, halfway houses and other methods of re-integrating the offender into society.

CRJS 352 Crime and Delinquency Prevention

Semester course; 3 lecture hours. 3 credits. Review and analysis of the problems associated with prevention of crime and delinquency, viewed in a total systems context. Programs and activities involving citizen, community and agency interrelationships will be developed and examined. Students are responsible for preparing and evaluating projects with crime preventive goals.

CRJS 355 Foundations of Criminal Justice

Semester course; 3 lecture hours. 3 credits. An examination of the intellectual underpinnings of the criminal justice system. This will include analysis of evolving values and ideas regarding social control, individual and collective responsibilities and rights, the role of punishment, politics and the law, practitioners as public servants, and criminological and other foundations of the criminal justice system.

CRJS 358 Lawyer's Role in the Justice System

Semester course; 3 lecture hours. 3 credits. Examines the multiple responsibilities of lawyers from an historical and contemporary perspective. The basic techniques of the lawyer's craft will be studied with emphasis placed on case advocacy, negotiation skills and legal reasoning, and problem solving.

CRJS 363 Correctional Law

Semester course; 3 lecture hours. 3 credits. Examines the legal rights of both the offender and the correctional worker. Attention is given to case law and legal decisions affecting policies and procedures in probation, correctional settings and parole. Trends influencing correctional programming and management activities will be projected.

CRJS 370 Criminalistics and Crime Analysis

Semester course; 3 lecture hours. 3 credits. A comprehensive evaluation of current developments in research, instrumentation and laboratory technology utilized to detect, identify, analyze and compare evidence.

CRJS 373 Crime Scene Evidence: Law and Trial Procedure

Semester course; 3 lecture hours. 3 credits. Provides a fundamental understanding of evidence law. Examines the nature and admissibility of various forms of evidence. Provides an understanding of the investigator's role in the judicial process including the presentation of testimony and adversarial proceedings.

CRJS 378 Juvenile Justice Law and Process

Semester course; 3 lecture hours. 3 credits. Examines the juvenile court as an institution; its jurisdiction and procedures. Considers intake, pretrial diversion and hearings, as well as rights and liabilities of the delinquent, dependent and neglected child. Contrasts juvenile and adult law; projects future impact of the court.

CRJS 380 Research Methods in Criminal Justice

Semester course; 3 lecture hours. 3 credits. Prerequisite: Statistics or permission of instructor. Designed to familiarize the student with current and applied research methods in criminal justice, including the application of data and information processing techniques and procedures; analyzes research in criminal justice journals and government reports; and enhances the capability to evaluate contemporary research.

CRJS 382/WMNS 382 Women in the Justice System

Semester course; 3 lecture hours. 3 credits. Surveys the special situation of women in the justice system as offenders, as victims and as professional practitioners. Applicable laws and public policy are studied in detail. Issues are punctuated by field trips to juvenile/adult programs and institutions.

CRJS 394 Field Service in Criminal Justice

1 credit. Designed to provide the student with an opportunity to participate as a volunteer worker in a criminal justice agency. Offers actual experience as an agency volunteer under the general supervision of a faculty member. An application is required a semester in advance. Graded as pass/fail.

CRJS 425 Violent Crime Scene Investigation

Semester course; 3 lecture hours. 3 credits. Introduces students to specialized tools and scientific aids used in the criminal investigation of homicide and rape cases. Applies investigative techniques and preparation of trial evidence used in homicides and rape cases.

CRJS 432 Criminal Justice: Organizations

Semester course; 3 lecture hours. 3 credits. Considers the behavioral dimensions of administrations in criminal justice and public safety agencies. Examines the concepts of leadership and decision making and the effect of environmental dynamics in the management of the criminal justice system.

CRJS 434 Police Administration

Semester course; 3 lecture hours. 3 credits. Examines major management concepts and principles with special emphasis on consideration of law enforcement. Policies and procedures formulated and followed by managers in law enforcement settings will be evaluated from a structural as well as a functional perspective. Contemporary and anticipated future problems,

challenges and trends facing police managers will be addressed.

CRJS 450 Computer Forensic Investigation

Semester course; 3 lecture hours. 3 credits. Prerequisite: Successful completion of the computer literacy test. Study of the emerging field of computer forensics including prevention, detection, apprehension, analysis and prosecution of security violators and criminals. Focus is primarily on the federal/state use of computer forensic investigation, which includes cybercrime, cybervandalism, cyberpredators, cyberterrorism and the use of computers as electronic file cabinets.

CRJS 463 Comparative Criminal Justice Systems

Semester course; 3 lecture hours. 3 credits. Study of national and international criminal justice systems with an emphasis on historical, cultural and operational comparisons. Contemporary research relating to law enforcement, adjudicative and correctional systems will be considered.

CRJS 468 Economic and Organized Crime

Semester course; 3 lecture hours. 3 credits. Analysis of the types of offenses which occur in the business and governmental work and the consequences of illegal practices. Primary attention will address the public sector through the methods utilized to detect and investigate criminal activities affecting governmental units. Relationships to organized crime will be described for each of the specific topics and techniques.

CRJS 475 Case Studies in Criminal Procedure

Semester course; 3 lecture hours. 3 credits. Analyzes case studies reflecting the supervisory role of the courts over the prosecutorial use of testimonial and nontestimonial evidence; examines by actual cases the judicial interpretive processes by which the public safety is balanced with individual rights.

CRJS 480 Senior Seminar

Semester course; 3 lecture hours. 3 credits. A capstone course designed to assist students to apply and to think critically about current knowledge regarding crime, crime trends, law, law enforcement, the adjudication process, corrections and crime prevention. Scenarios, research, projections and evaluation of different viewpoints will be employed to develop the student's ability to assess methods of argumentation, use information and apply existing knowledge to new fact situations. A writing intensive course restricted to seniors in criminal justice.

CRJS 491 Topics in Criminal Justice

Semester course; 1-3 lecture hours. 1-3 credits. In-depth examination of selected administration of justice topics. See the Schedule of Classes for specific topics and prerequisites.

CRJS 492 Directed Individual Study

Semester course; variable; 1, 2, 3 credits. Maximum total of six credits. Available to all other criminal justice students who are seniors and have a 3.0 or above GPA (with permission of department chair) as a substitute for a major elective course. Provides an independent study opportunity for the adult student who is (or was) employed in a criminal justice, safety or risk administration position and who does not require internship or volunteer experience.

CRJS 493 Internship

Semester course; 3 or 6 credits. Field internship allows the student to relate theory to practice through observation and experience; must be performed in an approved agency or organizational setting under the

supervision of a faculty member. An application is required a semester in advance. Graded as pass/fail.

Economics

Edward L. Millner

Program Coordinator and Professor (1998)
B.A. 1974 Hampden-Sydney College
Ph.D. 1982 University of North Carolina at Chapel Hill

Economics is the science of human choice, the study of how scarce resources are allocated among competing uses to satisfy human wants. Since many choices analyzed are made by or affect business decision-makers, economics is a unique blend of liberal arts and business. Therefore, the Department of Economics offers a Bachelor of Science in Economics conferred by the College of Humanities and Sciences with a core of liberal arts courses, as well as a Bachelor of Science in Economics conferred by the School of Business with a core of business courses. For further information on this second program see the "School of Business" chapter of this bulletin.

Economics teaches students how to analyze data and information and how to think strategically about business decision making. Because of their broad analytical, quantitative and decision-making skills, students who major in economics are sought for a wide array of positions in management and sales. For example, firms hire economics majors as bank examiners, consultants, financial advisers, managers and sales personnel. Economics is excellent preparation for almost any job with the word "analyst" in its title — such as business, credit, economic, financial, market research or risk analyst. A degree in economics also is excellent preparation for entrepreneurship or for graduate studies in business, law or medicine.

Degree requirements – Bachelor of Science in Economics

The Bachelor of Science curriculum in economics requires a minimum of 120 credits, with at least 33 of those credits in the major and three credits in STAT 210 Basic Practice of Statistics.

Students majoring in economics must complete ECON 210-211 Principles of Economics; ECON 301 Microeconomic Theory; ECON 302 Macroeconomic Theory; ECON 307 Money and Banking; STAT 210 Basic Practice of Statistics; and an

additional 18 credits of electives in upper-level (300-400) economics courses.

In addition to these requirements, students in this program also must take one course in computer science, or pass the computer literacy assessment. Students also must complete MATH 141 Algebra with Applications to fulfill the general education mathematics requirement for the College of Humanities and Sciences.

Economics majors are strongly encouraged to take additional courses in statistics and mathematics, especially if they intend to pursue either careers as practicing economists or graduate study in economics or business. Recommended mathematics courses include one or more of the following courses: MATH 151 Precalculus Mathematics, MATH 185 Computational Linear Algebra, MATH 200 Calculus with Analytical Geometry, MGMT 171 Mathematical Applications for Business, MGMT 212 Differential Calculus and Optimization for Business. Recommended statistics courses include one or more of the following courses: MGMT 302 Business Statistics, ECON 401 Introduction to Econometrics, STAT 212 Concepts of Statistics or STAT 314 Applications of Statistics. Students should consult with their advisers to determine which of these courses fit their particular interests and backgrounds.

In selecting approved electives to meet the general requirements of the College of Humanities and Sciences, students should select courses related to the economics major — specifically, courses in accounting, mathematics and statistics, philosophy, history, political science, sociology, anthropology and finance. Students should focus their electives on one or two of these subjects.

Juniors, seniors and graduate students who have completed baccalaureate degrees are eligible for enrollment in most upper-level (300-400) economics and business courses.

Minor in economics

This minor, offered through the College of Humanities and Sciences, requires at least 18 credits in the minor field including ECON 210-211 Principles of Economics; one or more courses from ECON 301 Microeconomic Theory, ECON 302 Macroeconomic Theory, or ECON 303 Managerial Economics. The remaining courses to fill this requirement must be chosen from upper-level (300-400) economics courses.

Cooperative Education Program

This program is available to qualifying students pursuing undergraduate degrees in economics. A full description of the program appears in the “Division of Student Affairs and Enrollment Services” chapter of this bulletin.

Political Science

Deborah Brock

Program Coordinator (2001)
B.S. 1976 George Washington University
M.A. 1978 George Washington University
Ph.D. 2000 Virginia Commonwealth University

The political science curriculum has two central objectives. It offers the student a broad liberal arts education along with a comprehensive understanding of the nature and the functioning of the political process and government. It also provides a sound foundation for graduate study in political science, public administration and nonprofit management, or for careers that require a knowledge of governance and the political process, such as law.

The political science program offers a Bachelor of Arts in Political Science as well as elective courses in political science for program majors and nonmajors, alike.

Degree requirements – Bachelor of Arts in Political Science

The Bachelor of Arts curriculum in political science requires a minimum of 120 credits, with at least 33 of those credits in political science.

Along with the general education requirements of the College of Humanities and Sciences and Academic Campus requirements, the student majoring in political science must take POLI 103 U.S. Government, POLI/INTL 105 International Relations, POLI 107 Political Theory, POLI 109 Comparative Politics and POLI 490 Senior Seminar.

Political science majors are strongly encouraged to take STAT 210 Basic Practice of Statistics to fulfill the Humanities and Sciences general education statistics requirement. In addition, political science majors are strongly encouraged to complete POLI/SOCY 205 Introduction to Social Science Computing and POLI/SOCY 320 Research Methods in the Social Sciences. With prior approval of the departmental

curriculum committee, students can take three credits toward the political science major from courses offered by other departments. Students may count a maximum of six credits of internship and three credits of independent study toward the major.

Collateral requirements

In addition to the political science courses required for the Bachelor of Arts degree, students must complete the study of a foreign language through the intermediate level (202 or 205) by course or placement.

Honors in political science

Political science majors can earn honors in political science. Students earn honors status when they complete POLI 490 Senior Seminar with an “A” grade and graduate with an overall 3.0 GPA and a 3.3 GPA in political science.

Accelerated Bachelor of Arts in Political Science and Master of Public Administration Program

This program permits selected students to earn the B.A. and M.P.A. in a minimum of five years, by taking certain master’s-level courses during the senior year of their undergraduate program. The program is restricted to students with strong credentials and a clear interest in a career in the public or nonprofit sector. To be eligible, a student must have completed 90 credits of course work and have an overall GPA of 3.0, with a GPA of 3.3 in political science courses. The accelerated program is limited to students majoring in political science and who have a minimum of nine credit hours in political science courses. To be considered for acceptance into the program and before enrolling in 600-level master of public administration courses, a student must complete the graduate school application, submit standardized test scores and supply the supporting information required for admission. Upon being accepted into the accelerated program, a student must meet the same standards of performance as a graduate student that are described in detail in the “Satisfactory Progress” section of the Graduate and Professional Programs Bulletin, must maintain a 3.0 GPA and must satisfactorily complete all of the requirements for the degree, as stated in this bulletin. Guidance to students admitted to the accelerated program is given by the

public administration program director. Students should contact the M.P.A. graduate director for more information about admission procedures.

To graduate with a bachelor's degree, a student must complete 120 hours of course work. Of these credits, 33 must be in political science. Of the 33 political science credits, 15 are required (POLI 103 U.S. Government, POLI/INTL 105 International Relations, POLI 107 Political Theory, POLI 109 Comparative Politics and POLI 490 Senior Seminar). Students enrolled in the accelerated program may take up to six credits of graduate public administration courses in each of the final two semesters of their undergraduate course work. These courses are shared credits with the graduate program, meaning that they will be applied toward the undergraduate degree requirement and the graduate degree requirement. A maximum of 12 credits may be taken prior to the completion of the baccalaureate degree. The Bachelor of Arts degree will be awarded when the student has completed all the requirements for the undergraduate degree, which may include the 12 graduate public administration credits.

The graduate courses that may be taken in the public administration program once a student is admitted to the accelerated program are as follows:

- PADM 601 Principles of Public Administration (may be used to meet the undergraduate major distribution requirement for U.S. politics and is a required course in the graduate program)
- PADM 602 Public Administration Theory (may be used to meet the undergraduate major distribution requirement for political theory and methodology and is a required course in the graduate program)
- PADM 607 Public Human Resource Management (core requirement for the M.P.A.; elective for the undergraduate major)
- PADM 609 Financial Management in Government (core requirement for the M.P.A.; elective for the undergraduate major)
- PADM 623 Research Methods for Public Administration (may be used to meet the undergraduate major distribu-

tion requirement for political theory and methodology and is a required course in the graduate program)

- PADM 624 Quantitative Methods for Public Administration (core requirement for the public administration degree; elective for the undergraduate major) or a PADM elective course (elective requirement for the M.P.A. and elective for the undergraduate major)
- PADM 650 Principles of Nonprofit Management (required for the concentration in nonprofit management and is an elective for the M.P.A. degree, and may fulfill an elective requirement in the undergraduate major)

All accelerated program students must have their course schedules approved by the graduate public administration program director prior to registration.

Minor in political science

A minor in political science consists of 18 credits, including POLI 103 U.S. Government, POLI/INTL 105 International Relations, and at least three upper-level (300-400) credits in each of the four areas of political science (comparative politics, international relations, political theory and methodology, and U.S. politics). See political science adviser for list of courses in each area. POLI 492 Independent Study, POLI/URSP 493 Urban Government Internship and POLI 494 Political Science Internship cannot be used to fulfill these 12 upper-level credits.

Concentration in public management

The concentration in public management is designed to offer students the opportunity for a broad-based public affairs education. Typical subject matter includes public policy issues and processes, relations between federal, state and local governments, organization theory, and public budgeting. The concentration can be combined with an internship designed to provide practical experience and exposure to the process of public management.

Concentration requirements

Political science and urban studies and geography majors should take:
 POLI 310 Public Policy
 POLI 331 Public Administration
 URSP 322 Urban Finance
 URSP 413 Policy Implementation

Minor in public management

A minor in public management is designed for students who wish to prepare for a variety of employment opportunities in government and related fields. It provides an overview of public affairs at the national, state and local levels. Its emphasis is on acquainting students with the political context of public administration, issues of particular importance in the private sector, and the complexity of planning and decision making. By emphasizing both professional skill and analytical thinking, it offers the possibility to develop valuable workplace skills and analytical capabilities that may qualify graduates for professional opportunities with local, state or federal agencies, and an ultimate career in the public sector. A public management minor also is solid preparation for graduate study in law, public administration, urban planning, public policy and political science. Students in the minor may arrange an internship to provide experience and practical exposure to public management.

Minor requirements

The minor consists of 18 upper-level credits. All students must take the following courses:
 POLI 310 Public Policy
 POLI 331 Public Administration
 URSP 322 Urban Finance
 URSP 413 Policy Implementation

In addition, two of the following electives are required:
 POLI 321 City Politics
 POLI 322 State and Local Government and Politics
 POLI 329 Intergovernmental Relations
 URSP 310 Introduction to Public Planning
 URSP 541 Urban Public Policy-making Processes
 POLI 494 Political Science Internship or URSP 493 Urban Government Internship (see adviser)

Note: Urban studies and geography students take POLI 321; political science students take URSP 541 or URSP 310.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in political science. A full description of the program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in political science (POLI)

POLI 103 U.S. Government

Semester course; 3 lecture hours. 3 credits. A study of American national government focusing on its

underlying political ideas, constitutional basis, major institutions, and their interaction in the determination of public policy.

POLI 105/INTL 105 International Relations

Semester course; 3 lecture hours. 3 credits. An introductory analysis of interstate relations and world affairs. Attention focuses on theories of international politics, military capabilities and their application, international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate.

POLI 107 Political Theory

Semester course; 3 lecture hours. 3 credits. Introduces students to the great thinkers and ideas of political theory. Provides an analysis of the relationship between ethics and politics in contemporary democracy and current challenges to traditional democratic theory. Topics discussed may include the nature of human existence and civilization; political obligations between the state and the citizen and among citizens; attempts to justify authority; the content and uses of power; and the right to disobedience and resistance, freedom, social justice, and equality.

POLI 109 Comparative Politics

Semester course; 3 lecture hours. 3 credits. Introduces students to the ways in which societies around the world govern themselves. Covers such topics as the historical evolution of the political system, political processes and institutions, and key issues in contemporary public policy for a globally representative group of 10 to 15 countries.

POLI 201 Introduction to Politics

Semester course; 3 lecture hours. 3 credits. This course examines the basic concepts involved in the study of politics. Topics include nature of the state, purpose of government, justice, power, etc.

POLI 205/SOCY 205 Introduction to Social Science Computing

Five-week course; 4 lecture/laboratory hours. 1 credit. Required of all sociology and anthropology majors concentrating in sociology. An introduction to the use of SPSS for storage, retrieval and exploration of social science data.

POLI 301 U.S. Parties and Elections

Semester course; 3 lecture hours. 3 credits. An overview of U.S. political parties and elections. Topics will include the history, organization and methods of U.S. political parties, presidential nominations and elections; Congressional elections.

POLI 302/AFAM 302 Politics of the Civil Rights Movement

Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America.

POLI 303 Public Opinion, Polling and the Media

Semester course; 3 lecture hours. 3 credits. Study of the interplay among the mass media, political campaigns and public opinion. Topics include public opinion and its measurement, how campaigns use public opinion polling and the impact of the media on public opinion.

POLI 306 The Congress

Semester course; 3 lecture hours. 3 credits. A study of the behavior of legislators and the structures and processes of legislative decision making in the U.S. Congress. Analysis will include both the internal and external environment of congressional policy making, and an assessment of the impact of congressional policy.

POLI 308 U.S. Presidency

Semester course; 3 lecture hours. 3 credits. A political and institutional study of the chief executive, focusing especially on the presidential personality and relations with Congress, the bureaucracy, the courts and the shaping of domestic and foreign policy.

POLI 310 Public Policy

Semester course; 3 lecture hours. 3 credits. An analytical survey of policy formulation and implementation in the United States, together with an examination of the impact of policy upon individuals and groups in American society.

POLI 311/ENVS 311 Politics of the Environment

Semester course; 3 lecture hours. 3 credits. An exploration of the current controversy about environmental politics and the issues and crisis it centers on. Special attention will be given to the constitutional, political and geographical factors in the development of environmental policy and the organized effort to deal with governmental actions and inaction and its impact on policy outcomes.

POLI 314 U.S. Constitutional Law

Semester course; 3 lecture hours. 3 credits. A survey of the development of the Constitution through judicial interpretation. Topics to be covered include an introduction to the operation of the Supreme Court, decisions on federalism, the powers of Congress, the president, the judiciary and civil rights and civil liberties.

POLI 315 Courts and Politics

Semester course; 3 lecture hours. 3 credits. Prerequisite: POLI 314. A study of theories and models of judicial decision making in the Supreme Court, focusing on judicial structure and procedures, policy-making analysis, political ideology, and judicial activism.

POLI 316/WMNS 316 Women and the Law

Semester course; 3 lecture hours. 3 credits. This course will introduce students to the history, politics and status of women under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession.

POLI 318/AFAM 318/WMNS 318 Politics of Race, Class and Gender

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

POLI 319/WMNS 319 Women and American Politics

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights.

POLI 320/SOCY 320 Research Methods in the Social Sciences

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: SOCY/POLI 205 or equivalent. Current methods of research in the social sciences.

POLI 321 City Politics

Semester course; 3 lecture hours. 3 credits. An examination of urban political power and influence, governance, and public policy. Topics include: power and influence, governmental structures and the political process, public policy, and service delivery.

POLI 322 State and Local Government and Politics

Semester course; 3 lecture hours. 3 credits. An examination of the politics and governance of states and localities. Attention is devoted to political culture, interest groups, political parties, the legislative, executive and judicial components of state government, along with the structure and political processes of local governments.

POLI 323 Virginia Government and Politics

Semester course; 3 lecture hours. 3 credits. An examination of Virginia state government and politics, with appropriate attention given to political culture, interest groups, political parties, the media and the legislative, executive and judicial branches of government.

POLI 329 Intergovernmental Relations

Semester course; 3 lecture hours. 3 credits. An examination of vertical and horizontal intergovernmental relations. Attention will be given to the major variants of federalism. The role of categorical and block grants in programmatic federalism will be assessed. Trends in intergovernmental relations will be advanced.

POLI 331 Public Administration

Semester course; 3 lecture hours. 3 credits. A study of the concepts and practices of public administration in the United States. Particular attention will be given to the administrative procedures and practices of the national government and of the government in Virginia.

POLI 341, 342 History of Political Thought

Semester courses; 3 lecture hours. 3-3 credits. A survey of political thought from the time of Plato to the present. First semester: leading political ideas of the ancient and medieval periods. Second semester: modern and contemporary thought.

POLI 343/AFAM 343 Black Political Thought

Semester course; 3 lecture hours. 3 credits. An historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present.

POLI 344 Contemporary Political Theory

Semester course; 3 lecture hours. 3 credits. This course provides a survey of recent trends in political theory. It examines updates of the major ideological traditions, arguments about the nature of modernity and recent developments in environment, feminist and non-Western thought.

POLI 345/AFAM 345 African-American Politics

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics,

particularly policies of Affirmative Action as a black progress strategy.

POLI 351/INTL 351 Governments and Politics of the Middle East

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects of traditionalism, the political nature of transition, the instruments of political modernization and evolution and revolution in the political process of Middle Eastern states. The course will explore the primary bases of cleavage and conflict and the principal forces that shape the policies and political dynamics of the region.

POLI 352/INTL 352 European Governments and Politics

Semester course; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries.

POLI 353/INTL 353 Latin American Governments and Politics

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges.

POLI 354/INTL 354 Russian and Post-Soviet Politics

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system, and the ongoing reform efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy.

POLI 355/INTL 355 Asian Governments and Politics

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India.

POLI 356/AFAM 356/INTL 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. This course will introduce the student to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

POLI 357/AFAM 357/INTL 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

POLI 358/INTL 358 Concepts of Comparative Government

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development.

POLI 361/INTL 361 Issues in World Politics

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collective security, international economic competitiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena.

POLI 362/INTL 362 International Organizations and Institutions

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community, the Organization of American States.

POLI 363/INTL 363 U.S. Foreign Policy

Semester course; 3 lecture hours. 3 credits. An analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers.

POLI 364/INTL 364 Vietnam

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of United States involvement. The course will examine closely how and why the United States became involved in Vietnam and what impact the Vietnam war has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including: public opinion and the war, the relationship between president and Congress in light of the war and contemporary U.S. politics as a backlash against the political movements of the 1960s.

POLI 365/INTL 365 International Political Economy

3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others.

POLI 366/WMNS 366/INTL 368 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

POLI 391 Topics in Political Science

Semester course; 3 lecture hours. 3 credits. Maximum total of nine credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest. See the Schedule of Classes for specific topics to be offered each semester.

POLI 420 Seminar in Urban Politics

Semester course; 3 lecture hours. 3 credits. Attention will be devoted to concerns bearing on community power and influence, the dynamics of the urban

political process, the nature of urban public policy and metropolitan governmental structure.

POLI 432 Bureaucratic Politics

Semester course; 3 lecture hours. 3 credits. Prerequisite: POLI 331. An analysis of the nature of bureaucracy and bureaucratic phenomena in American governments; the role and involvement of the bureaucracy in politics and the policy-making process. Primary focus on theories and approaches to understanding the central role of bureaucracy in modern society and its use and abuse of power.

POLI 448 Scope and Method of Political Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: POLI 103 and 201, or permission of instructor. A comprehensive and systematic study of the philosophy of political science, various theories seeking to explain political phenomena and some of the techniques of political analysis.

POLI 452/INTL 452 Seminar in the Politics of Developing Areas

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war.

POLI 468/INTL 468 Seminar on Comparative Foreign Policy

Semester course; 3 lecture hours. 3 credits. Prerequisite: POLI 201 or permission of instructor. A study of theories, models and hypotheses of foreign policy behavior in various types of political systems with emphasis on empirical research and analysis of differences and similarities.

POLI 490 Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisites: 24 credits in political science courses or permission of instructor. A capstone course examining the major ideas and debates in each of the four sub-fields of the discipline of political science: American government, political theory, comparative politics and international relations. Students are required to produce a research project on a critical issue in one of the sub-fields.

POLI 491 Topics in Political Science

Semester course; 3 lecture hours. 3 credits. Maximum total of nine credits in all departmental topics courses may be applied to the major. An intensive survey of a specialized field of political interest. See the Schedule of Classes for specific topics to be offered each semester.

POLI 492 Independent Study

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in political science. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration of the course. An independent study course that allows a political science major or other student who meets the requirement to do research, under the direction of an instructor qualified in that area, in a subject or field of major interest.

POLI 493/URSP 493 Urban Government Internship

Semester course; 150 clock hours in a local legislative body or administrative agency. 3 credits. May be

repeated once for a maximum of six credits or 300 clock hours. Approval of selection committee required. Under supervision of a faculty committee and a field supervisor, the internship is designed to present opportunities for qualified students to acquire exposure to aspects of public decision-making processes by participation in (1) local legislative bodies of the Richmond metropolitan area; (2) local and regional administrative agencies and commissions; and (3) private organizations that have demonstrated interest in local government and politics.

POLI 494 Political Science Internship

Semester course; 3 credits. May be repeated once for a maximum of six credits. Designed to provide the student with an opportunity to relate theory to practice through observation and actual experience in the legislative, executive or judicial branches of government, or in interest groups or political party organizations.

POLI 498 Political Science Honors

Semester course; 3 lecture hours. 3 credits. Prerequisite: Admission to the Honors in Political Science Program or permission of the political science honors coordinator. This course will focus primarily on various approaches to the study of politics and will draw together the diverse strands of political science that are the most representative, coherent and lively in the field. Its purpose is to acquaint the students with various conceptual frameworks for the study of politics or to develop their understanding of the state of the discipline.

POLI 499 Political Science Honors Project

Semester course; 3 lecture hours. 3 credits. Prerequisite: Successful completion of POLI 498 with a "B" grade or above. This course will entail the planning and execution of a major research project demonstrating a thorough understanding and use of research techniques in political analysis, knowledge of relevant literature, sophisticated writing and research ability under the direction of the honors coordinator.

Urban Studies and Geography

Morton B. Gulak

Program Coordinator and Associate Professor (1972)
B.A. 1961 Pennsylvania State University
M.U.R.P. 1972 Virginia Polytechnic Institute and
State University
Ph.D. 1980 University of Pennsylvania

The Bachelor of Science in Urban Studies and Geography provides opportunities to investigate urban, regional, national and global concerns while developing a solid foundation in the basic content areas of the two disciplines. The required core focuses on theory, analytical methodologies, technical skills and substantive themes of both disciplines. Students are provided with the necessary problem-solving skills that will contribute to their success in a rapidly changing world. These skills are developed in the context of professional, social and ethical responsibilities. The faculty strives to foster a spirit of learning, inquiry and curiosity among students culminating in the strength-

ening of their intellectual achievements. Students who earn a Bachelor of Science in Urban Studies and Geography have acquired those skills needed for graduate school or for fulfilling employment opportunities.

Nine core courses (27 credits) are required for all majors. These courses address basic knowledge across the disciplines of urban studies and geography, including physical geography, spatial dimensions of culture and human activity, urban design, economic geography, environmental management, and public policy. Students also gain skills in computer applications and research methods.

Because students in the Urban Studies and Geography program have varied interests and varied career goals, the major provides flexibility for individual students to develop their own course of study. To complete the remaining 11 to 12 credits in the major, students may select one of three concentrations: urban studies, geography or generalized course of study. Within the Urban Studies concentration, students may select one of two tracks: planning or urban affairs.

Faculty members represent the following disciplines and professions: planning, geography, political science, law, urban studies, economics, architecture and environmental studies. In addition, supporting urban studies and geography courses are taught by faculty members from other programs in the College of Humanities and Sciences.

Degree requirements – Bachelor of Science in Urban Studies and Geography

The Bachelor of Science in Urban Studies and Geography requires 120 credits, including 36 to 37 credits, depending on the concentration, within the major. The program is designed so that students may enter as late as their junior year. Note: students must complete STAT 210 Basic Practice of Statistics prior to enrolling in URSP 242 Computer Applications in Community Analysis. It is imperative that students complete this requirement as early as possible in their program, and no later than the spring semester of their junior year since it is a prerequisite for URSP/GEOG 306 Urban Economic Geography. URSP 242 also is a corequisite for URSP/GEOG 313 Urban Research and Field Methods. Students may substitute INFO 162 and SOCY 205/POLI 205 for URSP/GEOG 242 Urban Economic Geography.

Qualified seniors are allowed to enroll in most 500-level courses but should consult their adviser before registering to secure permission of the instructor.

Students with a minimum GPA of 2.5 may apply for participation in the Urban Government Internship Program, which provides an opportunity to work within the Richmond area and elsewhere on urban and regional problems. In general, students may not exceed 48 credits of urban studies and geography courses. However, those students who choose to participate in the internship program may exceed this maximum by three credit hours.

Core courses

All students must successfully complete all of the following required core courses.

GEOG 102 Introduction to Human Geography
GEOG 204 Physical Geography
URSP 116 Introduction to the City
URSP 242 Computer Applications in Community Analysis
URSP 261 Design of the City
URSP/GEOG 306 Urban Economic Geography
URSP/GEOG 313 Urban Research and Field Methods
URSP/ENVS/GEOG 332 Environmental Management
URSP 541 Urban Public Policy-making Processes

Students must then select one of the following concentrations for completing the remaining 11 to 12 credits in the major. All courses marked with an asterisk are required for that concentration/track. Electives must be selected with the assistance of a faculty adviser.

Urban studies concentration

The urban studies concentration provides students with an intellectual understanding of urban phenomena and with sufficient methodological skills to undertake entry-level responsibilities in public and private organizations dealing with the issues of urbanization. Students explore the social, political, economic and historic aspects of urban life including international comparisons of urban society and the policies that governments have devised to address urban problems.

Career opportunities exist in a wide variety of fields for graduates. Recent graduates in urban studies have found useful and meaningful employment in a number of public agencies and organizations, including planning departments, housing authorities, community development departments,

transportation firms, social welfare agencies and a variety of private organizations. Most students who choose graduate school have been accepted to leading institutions, enrolling in programs in architecture, planning, law, public administration, business administration and other majors in the social and behavioral sciences.

Students in the urban studies concentration may choose a track in planning or urban affairs. These tracks provide students with choices for more detailed study. The Richmond metropolitan area is the primary laboratory for this concentration, and the students are constantly challenged by the opportunities for research and community involvement.

Planning track

The planning track is intended for students interested in pursuing careers in urban planning. Courses in the track provide information about the planning profession, the issues that planners address, the methods and techniques they employ, and their roles in dealing with urban problems.

Students must complete 12 credits from the list including the required course (marked with an asterisk).

- URSP 310 Introduction to Planning*
- URSP 245 Housing and Community Revitalization
- URSP/GEOG 302 Land Use Capability
- URSP 322 Urban Finance
- URSP 350/FRLG 345/INTL 345 Great Cities of the World
- URSP 391 Special Topics in Urban Studies
- URSP 392 Independent Study
- URSP 397, 398 Independent Study
- URSP 413 Policy Implementation
- URSP 493 Urban Government Internship
- URSP 517 Historic Preservation in Planning
- URSP/ENVS/GEOG 521 Introduction to Geographic Information Science
- URSP 525 Site Planning and Graphics
- URSP 552 Urban Transportation Systems
- URSP 567 The American Suburb

Urban affairs track

The urban affairs track is intended for students interested in learning about cities in the United States and the world, and about urban public policy. Students in this track can pursue careers in a variety of agencies and organizations involved with different aspects and challenges of urban life.

Students complete 12 credits from this list including the required course (marked with an asterisk).

- URSP 413 Policy Implementation*
- URSP 245 Housing and Community Revitalization
- URSP 304 Urban Social System
- URSP 310 Introduction to Public Planning
- URSP 315 The Evolution of American Cities
- URSP 322 Urban Finance

URSP/GEOG/INTL 340 World Cities Outside of North America

URSP 350/FRLG 345/INTL 345 Great Cities of the World

URSP 391 Special Topics in Urban Studies

URSP 392 Independent Study

URSP 493 Urban Government Internship

URSP 552 Urban Transportation Systems

URSP 567 The American Suburb

Geography concentration

For geography, see "School of World Studies."

Generalized course of study concentration

This option is designed for those students who have a broad interest in both urban studies and geography. By self-identifying their scholarly interests and working closely with their adviser, students may tailor this concentration to match not only intellectual interests but anticipated career goals. Students may elect to complete the remaining 12 credits of the urban studies and geography major by selecting courses from both urban studies and geography.

Concentration in public management

The concentration in public management is designed to offer students the opportunity for a broad-based public affairs education. Typical subject matter includes public policy issues and processes, relations between federal, state and local governments, organization theory, and public budgeting. The concentration can be combined with an internship designed to provide practical experience and exposure to the process of public management.

Concentration requirements

Political science and urban studies and geography majors should take:

- POLI 310 Public Policy
- POLI 331 Public Administration
- URSP 322 Urban Finance
- URSP 413 Policy Implementation

Minor in public management

A minor in public management is designed for students who wish to prepare for a variety of employment opportunities in government and related fields. It provides an overview of public affairs at the national, state and local levels. Its emphasis is on acquainting students with the political context of public administration, issues of particular importance in the private sector,

and the complexity of planning and decision making. By emphasizing both professional skill and analytical thinking, it offers the possibility to develop valuable workplace skills and analytical capabilities that may qualify graduates for professional opportunities with local, state or federal agencies, and an ultimate career in the public sector. A public management minor also is solid preparation for graduate study in law, public administration, urban planning, public policy and political science. Students in the minor may arrange an internship to provide experience and practical exposure to public management.

Minor requirements

The minor consists of 18 upper-level credits. All students must take the following courses:

- POLI 310 Public Policy
- POLI 331 Public Administration
- URSP 322 Urban Finance
- URSP 413 Policy Implementation

In addition, two of the following electives are required:

- POLI 321 City Politics
- POLI 322 State and Local Government and Politics
- POLI 329 Intergovernmental Relations
- URSP 310 Introduction to Public Planning
- URSP 541 Urban Public Policy-making Processes
- POLI 494 Political Science Internship or URSP 493 Urban Government Internship (see adviser)

Note: Urban studies and geography students take POLI 321; political science students take URSP 541 or URSP 310.

Minor in urban studies

For a minor in urban studies, the following nine credit hours are required: URSP 315 The Evolution of American Cities, URSP 316 Urban Life in Modern America and URSP 310 Introduction to Public Planning. An additional nine hours of urban studies electives are to be taken with the advice and consent of an adviser in this department.

Master in Urban and Regional Planning

A Master in Urban and Regional Planning was established in 1973 to prepare professional planners for employment in state and local government and private firms. The M.U.R.P. is a two-year program that requires 48 semester hours of course work and internship. Accredited by the Planning Accreditation Board, the curriculum provides a grounding in the theory and methods of planning that is balanced between classroom

and field experience. Students may choose a broad program in comprehensive planning or elect one of five concentrations:

- urban revitalization and historic preservation
- housing and neighborhood planning
- economic development
- physical planning
- environmental planning

There also is the opportunity for a joint degree program within the T. C. Williams School of Law at the University of Richmond. See the Graduate and Professional Programs Bulletin for a more detailed description of this program.

Courses in urban studies and planning (URSP)

URSP 116 Introduction to the City

Semester course; 3 lecture hours. 3 credits. Introduction to the various theories of urbanism and attempt to offer solutions to the problems of urban life in modern civilization. The course will survey the major works of those who have studied cities or offered solutions and alternatives to existing urban structures. The works of noted social reformers, political analysts, economists, and architects as well as urban planners will be examined through lectures, readings, films, slides, discussions and field trips (when feasible).

URSP 242 Computer Applications in Community Analysis

Semester course (5 weeks); 4 lecture/laboratory hours. 1 credit. Prerequisite: STAT 210. Practical introduction to computer software and techniques used in urban analysis, emphasizing spreadsheet applications and use of SPSS for analyzing social science data.

URSP 245 Housing and Community Revitalization

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to examine housing issues as a major determinant of the make-up and the quality of community life in modern American society. Attention is given to the public and private forces that influence various components of the housing issue, such as: demand for housing; housing availability to various economic and social groups; housing design and quality (including new construction, rehabilitation, historic preservation, and adaptive re-use), housing finance and the relationship of housing to planning in metropolitan areas.

URSP 261 Design of the City

Semester course; 3 lecture hours. 3 credits. Architecture, space and activities play a special role in the overall design of the city. These elements are analyzed to understand their interrelationships and importance to a city's visual character. Architectural styles, civic art, effects of space on the individual, and methods for designing cities will be discussed. The class is for those who want to understand urban design elements and for those who will be involved in city design.

URSP 302/GEOG 302 Land Use Capability

Semester course; 3 lecture hours. 3 credits. An introduction to the principles, concepts and knowledge involved in determining the capacity of land under various conditions to support a variety of uses.

URSP 304 Urban Social Systems

Semester course; 3 lecture hours. 3 credits. A study of the growth and development of neighborhoods, cities and metropolitan systems. Analyzes origins of community interests and factors that affect the ability of communities to further their interests. Particular attention is given to how patterns of service delivery and the placement of public facilities affect community interest and whether federal or municipal departments are able to set adequate community service standards.

URSP 306/GEOG 306 Urban Economic Geography

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 242. Explores the nature of work as it is organized in urban businesses, the interdependence of industries and the reasons why different cities develop different types of economies. Policies and strategies for developing and maintaining healthy urban economies will be discussed in detail. This course is a prerequisite for URSP 322 Urban Finance.

URSP 310 Introduction to Public Planning

Semester course; 3 lecture hours. 3 credits. Introduction to theory and practice of governmental planning in the United States with emphasis on urban and regional planning. Survey of the history of urban planning, current planning practice at the local level and the ethical responsibilities of planners.

URSP 313/GEOG 313 Urban Research and Field Methods

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210. Pre- or corequisite: URSP 242 or permission of instructor. Methods of data collection, organization and updating; the use of secondary information; applications of elementary statistical analysis and of graphic and cartographic analysis.

URSP 315 The Evolution of American Cities

Semester course; 3 lecture hours. 3 credits. A general survey of how cities developed in the United States and the factors that contributed to the process of urbanization. Emphasis is placed on the public attitudes and values that have dominated particular periods of history and how these values affected the efforts to urbanize. The American city is examined as a vital force in the economic, social and political development of modern America, as the major location for conflict between people of all persuasions, and as the home of much of what is meant by American "civilization."

URSP 316 Urban Life in Modern America

Semester course; 3 lecture hours. 3 credits. Restricted to nonmajors. Examines how a modern city functions, the public services rendered within the city and the impact of public policy on the city. The city is treated as a system consisting of economic, social and political activities that influence and are influenced by the physical/demographic environment. Each activity is studied separately with the cause-effect relationships among the activities highlighted by an analysis of public service delivery and, more generally, urban public policy.

URSP 321/ECON 321 Urban Economics

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. An introduction to urban economics, with an emphasis

on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public services and urban public financing, especially in politically fragmented areas.

URSP 322 Urban Finance

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 306. Treats the local government from a practical management perspective as an organization in a political-economic environment. The nature of city expenditures and sources of revenues are explored. Budgeting and taxing decision-making processes are explored in depth. Economic impacts of these decisions on citizens are analyzed and implications for practice drawn.

URSP 332/ENVS 332/GEOG 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

URSP 340/GEOG 340/INTL 340 World Cities

Outside of North America

Semester course; 3 lecture hours. 3 credits. Examines the role of cities in the development of a variety of geographical regions outside of North America. Consists of a broad overview of the historical evolution of cities, their internal structure and relation to the world system and urban problems.

URSP 350/FRLG 345/INTL 345 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. May be repeated under different topics for a total of six credits. Prerequisite: Sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

URSP 391 Special Topics in Urban Studies

Semester course; 1, 2 or 3 credits. Because of the changing subject matter to be treated in this course, permission of the instructor is required. Students will have an opportunity to examine in detail some questions of significance. See the Schedule of Classes for the specific topic to be offered each semester.

URSP 392 Independent Study

Semester course; 1-3 lecture hours. 1-3 credits. Junior or senior standing is required. Under supervision of a faculty adviser, who must approve the student taking the course, a student studies a topic of interest.

URSP 397, 398 Independent Study

Semester courses; 2 or 3 lecture hours. 2 or 3 credits. Junior or senior standing is required. Under supervision of a faculty adviser, whose consent is required to register, study a topic of concern to the student. Examines the role of cities in development of a variety of geographical regions outside of North America.

URSP 413 Policy Implementation

Semester course; 3 lecture hours. 3 credits. An examination of the administrative setting of government and its policy impacts on public programs, policy design and redesign, and evaluation and monitoring.

URSP 440 Senior Seminar: The Good City

Semester course; 3 lecture hours. 3 credits. Prerequisite: Senior standing. Readings, discussion and individual research into "the good city" as it is expressed theoretically and practically. Perspectives from the arts and humanities, as well as the social sciences, are brought to bear on the normative question, "What is the good city?" A research project is a requirement.

URSP 493 Urban Government Internship

Semester course; 150 clock hours in a local legislative body or administrative agency. 3 credits. May be repeated once for a maximum total of six credits or 300 clock hours. Approval of selection committee required. Under supervision of a faculty committee and a field supervisor, the internship is designed to present opportunities for qualified students to acquire exposure to aspects of public decision-making processes by participation in (1) local legislative bodies of the Richmond metropolitan area; (2) local and regional administrative agencies, commissions and boards; and (3) private organizations that have demonstrated interest in local government and politics.

URSP 517 Historic Preservation in Planning

Semester course; 3 lecture hours. 3 credits. The course surveys the process of historic preservation that includes the evaluation of sites, identification of architectural styles, the adaptive use of sites and structures, and the various sources available for implementing preservation proposals in government or the private sector. Preservation is considered as a tool in the planning process; and its application to neighborhoods, downtowns, and other city districts is considered.

URSP 521/GEOG 521/ENVS 521 Introduction to Geographic Information Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. An introduction to creating and using geographically referenced databases for urban and environmental analysis and planning. Includes geographic and remote sensing data structures, global positioning systems, spatial analysis, geographic data standards, public domain software and data resources, and principles of cartography design. Lab exercises in the use of geographic information systems software tools.

URSP 525 Site Planning and Graphics

Semester course; 3 lecture hours. 3 credits. Addresses the environmental impacts and capacity of environmental systems in relation to the site requirements of various urban and rural situations. Introduces the use of graphics as an aid in presenting and analyzing planning and design ideas, maps and plans.

URSP 541 Urban Public Policy-making Processes

Semester course; 3 lecture hours. 3 credits. Discusses the politics of urban life. Examines the physical, demographic and economic environments in which conflict resolution occurs, as well as the actors on the local, state and federal levels that participate in the political process.

URSP 552 Urban Transportation Systems

Semester course; 3 lecture hours. 3 credits. An examination of urban requirements for mobility, transportation systems, problems of traffic, mass transit and new concepts for moving people and goods.

URSP 567 The American Suburb

Semester course; 3 lecture hours. 3 credits. Provides students with an understanding of the suburban movement in America, the elements of suburban growth and an awareness of current and emerging approaches to suburban planning and design. Includes neotraditional design, transit oriented development, new urbanism and master planned communities. A working knowledge of the U.S. Census is needed for some assignments.

School of Mass Communications

Judy VanSlyke Turk

Professor and Director, School of Mass Communications (2002)
 B.S.J. 1970 Medill School at Northwestern University
 M.A. 1977 Northern Illinois University
 Ph.D. 1985 Maxwell School at Syracuse University

Paula I. Otto

Associate Professor and Assistant Director (1997)
 B.S. 1983 West Virginia University
 M.A. 1997 American University

The School of Mass Communications prepares students for careers in the mass media and related fields and encourages high standards of ethical and journalistic performance. The required courses in the school provide a broad educational base and instruct the students in the techniques of mass communications.

The School of Mass Communications offers a Bachelor of Science in Mass Communications with specialization in one of three sequences.

The Journalism Sequence provides students with the skills and practice necessary for careers in the news media. Students choose one of two concentrations: broadcast or print.

The Advertising Sequence prepares students for careers at advertising agencies, marketing departments of corporations or service organizations, and media buying companies. Students choose one of two concentrations: business or creative.

The Public Relations Sequence is designed to prepare students for employment in industry, government, nonprofit associations and public relations agencies.

Degree requirements – Bachelor of Science in Mass Communications

The Bachelor of Science in Mass Communications requires a minimum of 120 credits with 34 to 40 credits (depending on the sequence) in the major field. No more than

40 credits in the major field can be counted toward the 120 credits needed to graduate. In addition, students must earn a total of 45 credits in classes at the 300-level and above, including upper-level mass communications course work. A cumulative and major GPA of 2.35 is required to graduate from the mass communications program. The school is divided into the pre-major (freshman and sophomore) and the major (junior and senior).

Four courses in the major — MASC 101 Mass Communications, MASC 203 Writing for Mass Media, MASC 290 Ethical Problems in Mass Media and MASC 300 Media Graphics — may be taken in the lower division. To enroll in MASC 203, students must receive departmental permission. Students who are pre-majors need departmental permission to enroll in MASC 300.

Admittance to the major in the School of Mass Communications is contingent on meeting the following requirements: a GPA of at least 2.35 in all courses, completion of a minimum of 40 hours of course work and a maximum of 60 hours. Students who have not met the prerequisites and not achieved the required GPA in the semester they complete 60 credit hours will no longer be eligible to declare a major in mass communications. Transfer students will be evaluated on an individual basis, but generally will be required to meet the prerequisites for admission to the major during the second semester they are enrolled at VCU. Course work required to be completed for admittance into the major includes MASC 101 and MASC 203 with at least a grade of "C" and completion of the following courses: ENGL 101-200, MATH 131 or equivalent, POLI 103, passing the Computer Literacy Assessment, College of Humanities and Sciences global studies and science requirements, and ECON 203.

Certification of these requirements must accompany a formal petition for admission to the major. At that time the student must select an area of specialization in mass communications.

To enroll in a mass communications course, majors must have earned at least a "C" in all courses prerequisite for that course.

Transfer students with junior standing admitted to VCU are placed on one-semester probation to establish the required GPA before admission to the major.

Students admitted to the upper division must choose one of the following concentrations:

Advertising sequence

MASC 300 Media Graphics
MASC 380 Introduction to Advertising
MASC 392 Advertising Copywriting
MASC 481 Advertising Campaigns

Business concentration

MASC 398 Advertising Account Planning and Media Strategy
MASC 399 Advertising Account Management
MASC 408 Communications Law
MASC 459 Advertising Business Portfolio
MASC 493 Fieldwork/Internship
MASC Elective (three credits)

Creative concentration

MASC 394 Advertising Art Direction
MASC 450-451 Advertising Portfolio Development
MASC Electives (six credits)

Public relations sequence

MASC 300 Media Graphics
MASC 323 Public Relations
MASC 333 Public Relations Writing
MASC 335 Public Relations Production
MASC 408 Communications Law
MASC 425 Public Relations Research
MASC 439 Public Relations Campaigns
MASC 493 Fieldwork/Internship (1-3 credits)
MASC elective* (3 credits)

* Recommended elective – MASC 380 Introduction to Advertising

Journalism sequence

MASC 303 General Assignment Reporting
MASC 363 Electronic Media Writing I
MASC 365 Radio Production
MASC 366 Television Production
MASC 408 Communications Law
MASC 493 Fieldwork/Internship (one-three credits)
MASC 495 Journalism Seminar

Print concentration

MASC 300 Media Graphics
MASC 305 Copy Editing
MASC electives (three-six credits)
And choose six credits from the following:
MASC 403 Advanced Reporting
MASC 404 Specialized Project Reporting
MASC 475 Capital News Service

Broadcast concentration

MASC 361 History and Development of Broadcasting
MASC elective (three credits)
Choose four credits from the following:
MASC 414 Advanced Radio Production
MASC 415 Advanced Television Production
MASC 463 Electronic Media Writing II
MASC 464 Electronic Media Writing III

Choose four to nine credits from the following:

MASC 461 The Documentary
MASC 462 Non-linear Editing
MASC 465 Newscasting
MASC 466 VCU InSight Production

Collateral requirements

In addition to mass communications courses, other required general education courses and the collateral courses for the sequences listed below, students must take the following:

HIST 103, 104 Survey of American History
Any course from List G (Historical and Cultural Origins)
One additional literature course except ENGL 351 Children's Literature or ENGL 433 Literature for Adolescents
One three-credit course from the following:
POLI 303 Public Opinion, Polling and the Media
POLI 310 Public Policy
POLI 311/ENVS 311 Politics of the Environment
POLI 314 U.S. Constitutional Law
POLI 315 Courts and Politics
POLI 321 City Politics
POLI 322 State and Local Government and Politics
POLI 331 Public Administration
POLI 341 History of Political Thought
POLI 365/INTL 365 International Political Economy
POLI 420 Seminar in Urban Politics
URSP 304 Urban Social Systems
URSP 310 Introduction to Public Planning
URSP 315 The Evolution of American Cities
URSP 316 Urban Life in Modern America
URSP 340/GEOG 340/INTL 340 World Cities Outside of North America
URSP 350/FRLG 345/INTL 345 Great Cities of the World

Additional collateral requirements for the tracks include the following:

Advertising

ANTH 103, PSYC 101 or SOCY 101
MRBL 308 Introduction to Marketing

Public relations

One additional history course
ACCT 202 Accounting for Non-Business Majors
MRBL 308 Introduction to Marketing
MGMT 319 Organizational Behavior
SPCH 321 Speech for Business and the Professions

Journalism

One additional history course

Minor in media studies

The minor in media studies consists of 18 credits in mass communications (nine required credits and nine elective credits). All courses counted toward the minor must be completed with a "C" grade or better.

Permission is required to enroll in MASC 203 and all upper-level MASC courses. All students in the Minor in Media Studies program are required to register with the School of Mass Communications prior to beginning course work. Media studies course work will be distributed as follows:

Required courses – 9 credits (three courses)

MASC 101 Mass Communications
MASC/INTL 151 Communications Technology and Global Society
Select either MASC 290 Ethical Problems in Mass Media or MASC 408 Communications Law

Elective courses – 9 credits (choose three courses from the following list)

MASC 203 Writing for Mass Media
MASC 300 Media Graphics
MASC 323 Public Relations
MASC 361 History and Development of Broadcasting
MASC 380 Introduction to Advertising
MASC 491 Topics in Communications
MASC 492 Independent Study

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing an undergraduate degree in mass communications. A full description of the program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in mass communications (MASC)

MASC 101 Mass Communications

Semester course; 2 lecture and 2 laboratory hours. 3 credits. A broad survey of mass media, with emphasis on new media, global media and the business of media as traditional lines blur among journalism, advertising and public relations. The history and evolution of mass media are examined. Emphasis is given to mass media law and ethics, including the origins and evolution of a free press and the legal framework of contemporary mass media practice.

MASC 151/INTL 151 Communications Technology and Global Society

Semester course; 1.5 lecture and 1.5 computer-assisted online discussion hours. 3 credits. A comprehensive overview of how communications technologies have shaped and are shaped by society. Considers how digital and earlier technologies have led to increasing integration of world cultures and economies.

MASC 181 Principles of Advertising

Semester course; 3 lecture hours. 3 credits. Not open to mass communications majors. A survey of all forms of advertising; principles of layout copy; production methods; campaign preparation; media selection.

MASC 203 Writing for Mass Media

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: MASC 101, ENGL 101, completion of KnowledgeNet assessments for "Microsoft Office 2000 Intermediate Word" and "PowerPoint," cumulative GPA of 2.35, and sophomore standing. Students must obtain permission to register from the School of Mass Communications office. Study and practice in fact gathering and development of the basic skills needed for writing for the media. Focus on news writing stressing grammar skills and knowledge of current affairs. Writing on deadline using word-processing software and hardware.

MASC 290 Ethical Problems in Mass Media

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 101 or permission of school. Examination and analysis of contemporary issues and problems in conventional and new media. The philosophical foundation and principles of ethical decision making are explored. Critical and unresolved issues are discussed within the legal and ethical framework of modern mass media practice. Students are required to design and justify resolutions to the issues and present defenses for the resolution proposals.

MASC 101 and MASC 203 are prerequisites for the following courses.**MASC 300 Media Graphics**

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. A course on the functions of visual and graphic communication in the print and electronic media. Course focuses on creative typographic and layout design, editing, pictures and nonverbal elements of communications and perception, and integrates computer software packages such as PageMaker, Quark and others.

MASC 303 General Assignment Reporting

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Detailed study in gathering and reporting facts, with emphasis on clarity and maturity of writing. The intent is to build skills in interviewing, to provide practice in writing general news and features and to prepare for entry-level reporting assignments.

MASC 305 Copy Editing

Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: MASC 101, MASC 203 and MASC 300. For mass communications majors only. Instruction and practice in basic newspaper editing with a focus on practical experience in editing local and news service copy for publication. Includes emphasis on headline writing, development of news judgment, accuracy and fairness while exposing students to legal problems confronting a copy editor. Some attention will be paid to layout and design of newspapers.

MASC 323 Public Relations

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Study of public relations principles and practices, including analysis of tools, media, ethical responsibilities and emerging technologies. Special attention to the theory and research literature on rational and ethical persuasion.

MASC 333 Public Relations Writing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101, MASC 203 and MASC 323. For mass communications majors only. An intensive writing course focusing on researching and writing materials in support of the public relations function. Practice in preparing materials for controlled and uncontrolled media, both print and broadcast, including news releases, interview protocols, special events background materials, media kits, employee newsletters, community relations materials and formal public speaking scripts. Explores routine, special event and crisis situations, and the link between written and audiovisual documents.

MASC 335 Public Relations Production

Semester course; 2 lecture and 2 laboratory hour. 3 credits. Prerequisites: MASC 333 and SPCH 321. For mass communications majors only. Instruction and practice in public relations writing styles including speeches, public service announcements and Web writing. Practice in production of broadcast and computer-based materials for public relations, oral presentations, and special events planning and implementation.

MASC 341 Feature and Article Writing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 303 or 363, or permission of instructor. For mass communications majors only. Practice in preparing articles and features for newspapers and magazines. Emphasis is on creative journalistic writing and development of writing skills.

MASC 361 History and Development of Broadcasting

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. An examination of the regulatory, technical, economic and creative foundations of the broadcast media. Historical, contemporary and ethical issues in broadcasting also are addressed.

MASC 363 Electronic Media Writing I

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. Corequisites: MASC 363 to be taken concurrently with MASC 365 and MASC 366. For mass communications majors only. Students will concentrate on developing writing and reporting skills for radio and television. Weekly writing assignments. Students will write the following for radio: a wrap, a person on the street, a two-part series. Students will write the following for television: an anchor voice over, a voice over sound on tape and a package with reporter stand-up.

MASC 365 Radio Production

Semester course; 3 laboratory hours. 1 credit. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Students will learn the purpose, function and execution of basic techniques of radio and audio field and studio production operations. Emphasis will be placed on the production of broadcast-quality audition tapes. Fieldwork production, remote production and live production. Radio production, organization structure, individual roles and the one-person newsroom also will be covered.

MASC 366 Television Production

Semester course; 3 laboratory hours. 1 credit. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Students will learn the purpose, function and execution of basic techniques of television and video field and studio production operations. Emphasis will be placed on the production

of broadcast-quality audition tapes. Fieldwork production, remote production, live production. Television production, organizational structure, individual roles and the one-person television crew also will be covered.

MASC 380 Introduction to Advertising

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. An overview of the advertising industry. A practitioner-oriented approach to the creation, preparation and evaluation of advertising. The course views the subject from the perspective of integrated marketing communication.

MASC 391 Newspaper Advertising

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. A course in the preparation, placing and proofing of advertising in daily and weekly newspapers. Its aim is to improve the appearance, effectiveness and originality of newspaper advertising. Some attention is given to the organization and management of the advertising function in newspapers.

MASC 392 Advertising Copywriting

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 101 and MASC 380. For mass communications majors only. Study of the different types of advertising copy used by both local and national advertisers. Practice in writing consumer, trade and industrial copy.

MASC 393 Creativity for Television

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 380. For mass communications majors only. Learn the process of developing professional-level television advertising with a concentration in creative thinking and solutions. Students create TV commercials with attention to scripts, storyboards, talent, visual composition, editing, music, sound effects and direction.

MASC 394 Advertising Art Direction

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 300 and 380. For mass communications majors only. Study and practice in layout and design of advertising for all media. Ideas will be followed from concept to production.

MASC 398 Advertising Account Planning and Media Strategy

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 380 or MASC 323. For mass communications majors only. An examination of the methods advertisers use to learn about consumers and what motivates purchase decisions. The techniques account planners and market researchers employ, including quantitative and qualitative research, demographics, psychographics, and social and anthropological studies. Consumer research as applied to the development of media strategies. Practical problems in planning and buying media as they relate to integrated marketing campaigns.

MASC 399 Advertising Account Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MASC 380. For mass communications majors only. This course is designed to prepare students for careers in the business of advertising, particularly for those interested in careers as account executives. The class will focus on account management and the theories behind those management practices. Topics covered include relationship and services management, communication

skills (writing creative briefs, client communications, listening skills, presentation skills), negotiation tactics, team management, leadership and organizational skills.

MASC 403 Advanced Reporting

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: MASC 303 and 305. For mass communications majors only. Intensive study of the techniques of reporting meetings and news of public affairs. Attention will be paid to covering governmental agencies at all levels. Advanced instruction of newspaper editing included. Quality of writing will be a paramount and continual consideration.

MASC 404 Specialized Project Reporting

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: MASC 403. For mass communications majors only. An advanced course to provide news beat experience for students reporting on complex issues facing the public in the urban community. Emphasis also on editing, team reporting, in-depth research and interviewing techniques, and use of public records.

MASC 408 Communications Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Study of legal limitations affecting publishing, advertising, broadcasting and telecasting and legal philosophy and ethics relating to the media of communications.

MASC 414 Advanced Radio Production

Semester course; 3 laboratory hours. 1 credit. Prerequisite: MASC 365. For mass communications majors only. Documentary soundtrack production, multitrack production, music production for radio and television. Digital audio workstations. Audio and related electronic media computer software applications.

MASC 415 Advanced Television Production

Semester course; 3 laboratory hours. 1 credit. Prerequisite: MASC 366. Corequisite: MASC 464 or permission of instructor. For mass communications majors only. Students learn advanced field shooting and editing techniques as well as the inner workings of the television studio including studio camera operation, advanced audio, digital video effects, character generation, master control and multi-camera live direction techniques. Students also will learn video and related electronic media computer software applications.

MASC 425 Public Relations Research

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. An introduction to the role of research in public relations, with primary emphasis on content analysis, focus group, survey and communication audit methods and the evaluation of quantitative research data.

MASC 439 Public Relations Campaigns

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101, 203, 323, 333, 335 and 425. For mass communications majors only. Application of public relations theory and methods in the preparation of a plan for a public relations campaign. Special attention to the planning process including issues analysis, and application of public relations and research methods.

MASC 450-451 Advertising Portfolio Development

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MASC 300, 380, 392 and 394. For mass

communications majors only. An advanced, intensive study of copywriting and art direction for advertising, emphasizing strategic and creative development of advertising campaigns. Students will conceptualize advertising campaigns, execute digitally produced, comprehensive advertisements and campaign materials, and assemble a final portfolio. Culminates in a formal portfolio review with professionals from the advertising industry.

MASC 459 Advertising Business Portfolio

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 380, MRBL 308, MASC 398 and MASC 399. For mass communications majors only. An advanced intensive study in the business of advertising. Students will prepare comprehensive materials used in advertising campaigns including advertising strategies, market and consumer research, and creative briefs based on those findings. Emphasis will be on the development of planning, media and account management skills to create a portfolio for students in the business concentration.

MASC 461 The Documentary

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 363, 365 and 366, or permission of instructor. MASC 464 may be taken concurrently with the instructor's permission. Corequisite: MASC 462. For mass communications majors only. An examination of documentary concepts through analysis of radio, television and film documentaries. The course will center on the development, writing and production of a documentary in the medium (audio or video) of the student's choice.

MASC 462 Non-linear Editing

5 week course; 1.5 lecture and 3 laboratory hours. 1 credit. Prerequisite: MASC 366 or permission of instructor. For mass communications majors only. Instruction and practice in basic non-linear videography and editing, using non-linear computer-based software. Students will learn all basic elements of non-linear editing: logging and capturing, creating files and creating short sequences on timelines. Students will create a short 90-second digital video story as a final project.

MASC 463 Electronic Media Writing II

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101, 203, 363, 365. For mass communications majors only. Radio practicum. Students will submit radio programming for broadcast on Richmond radio stations and on a statewide satellite news network. Writing intensive. Using the city of Richmond as their classroom, students will report, write and produce radio and audio news and programming. Studio and remote equipment will be utilized to create professional caliber projects.

MASC 464 Electronic Media Writing III

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 363, 365, 366. Corequisite: MASC 415. For mass communications majors only. Television practicum. Students will produce television programming for submission to broadcast on Richmond television stations. Writing intensive. Using the city of Richmond as their classroom, students will report, write and produce television and video news and programming. Studio and remote equipment will be utilized to create professional caliber projects.

MASC 465 Newscasting

Semester course; 1 lecture and 4 laboratory hours. 3 credits. May be repeated once for a total of six credits. Prerequisites: MASC 363. Corequisite: MASC 466.

For mass communications majors only. Concentrates on developing on-air skills in radio and television studio and field situations. Emphasizes journalistic principles in delivery of news, public affairs, editorial and interviews. Grammar, diction and broadcast writing are stressed.

MASC 466 VCU InSight Production

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Students may repeat the course for up to six credits. For mass communications majors only, or by permission of instructor. Instruction and practice in all aspects of television show production for technical, producer and talent roles. This course supports the production of the School of Mass Communications' PBS television show, "VCU InSight."

MASC 475 Capital News Service

Semester course; 9 laboratory hours. 3 credits. Prerequisites: MASC 300 and 303. To register, a student must complete an application and submit writing samples for approval by the Capital News Service director. For mass communications majors only. Concentrated semester-long course providing government reporting and/or editing/graphics experience for advanced students for publication in statewide community newspapers. Coverage includes Virginia General Assembly when in session plus legislative committee meetings and governmental agencies in Richmond as well as the U.S. Congressional and presidential elections. Some topical issue-oriented political and medical enterprise reporting included. Strong emphasis on fast-paced deadlines.

MASC 481 Advertising Campaigns

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 392 and 394, or permission of instructor. For mass communications majors only. Intensive study in the planning and preparation of advertising campaigns. Students develop complete advertising programs including research, basic advertising plans, media and creative strategies, sales promotion and merchandising plans.

MASC 485 Web Site Design

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: MASC 300 or permission of instructor. For mass communications majors only. Students will receive an introduction to the processes, principles and tools of Web site design, development and production. The course will focus on the development of strong interactive interfaces, animation, graphic images, text, and functional site design and organization. In this hands-on, computer-based course, students will design and develop a comprehensive site and launch it to the Internet. Increasing the students' knowledge of design principles and technical skills with Web development tools will be emphasized.

MASC 486 Creative Advertising Workshops

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: MASC 101, 203, 394 or permission of instructor. For mass communications majors only. A concentrated study of principles of advertising message development. Creative strategies will be developed to accomplish advertising objectives. Students develop and defend campaign themes and message ideas including print layouts and television storyboards. Emphasis on creating messages for multimedia exposure.

MASC 487 Seminar in Advertising in Society

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications

majors only. An examination of the role of advertising in modern life in America in light of historical and recent development in advertising and distribution.

MASC 489 Sales Promotion

Semester course; 3 lecture hours. 3 credits. Prerequisites: MASC 101 and MASC 203. For mass communications majors only. Describes and analyzes sales promotion between the manufacturer and three other levels: the distribution system, the consumer and the sales force. Effective use of special media, merchandising activities and sales aids also are discussed.

MASC 491 Topics in Communications

Semester course; variable; 1, 2 or 3 credits per semester. Maximum total three credits. Prerequisites: MASC 101 and MASC 203. Permission of instructor. For mass communications majors only. An intensive study of a specialized field of mass communications.

MASC 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester; maximum total of six credits for all independent study courses. Prerequisites: MASC 101 and MASC 203. Open generally to students of only junior and senior standing who have acquired at least 12 credits of mass communications. To register, a student must write a proposal and have it approved by the student's adviser, supervising instructor and school director or assistant director. For mass communications majors only. The course is designed for students who wish to study subject matter not offered elsewhere in the mass communications' curriculum.

MASC 493 Fieldwork/Internship

Semester course; variable; 1, 2 or 3 credits per semester. Maximum total three credits toward graduation. Prerequisites: MASC 101 and MASC 203. Permission of faculty member and of internship coordinator. For mass communications majors only. Selected students will receive on-the-job training under the supervision of an instructor and the employer. Internships are available in newspapers, magazines, public relations, advertising, radio and television.

MASC 495 Journalism Seminar

Semester course; 1 lecture hour. 1 credit. Must be taken once in conjunction with one of the following courses: MASC 403, MASC 404, MASC 461, MASC 465 or MASC 475. For mass communications majors only. This intensive seminar is for senior broadcast and print journalism students. Includes examination of issues such as multi-media story planning and storytelling, visual presentation and design, newsroom leadership and culture, trends in media consolidation, copyright and other legal issues that cross media platforms. Students will produce a multiple-media news story or package that will be published through one or more venues available in the School of Mass Communications.

MASC 499 Problems and Issues in Mass Communications

Semester course; variable; 1, 2 or 3 credits per semester. Maximum total of three credits. Prerequisites: MASC 101 and MASC 203. Open only to students who have successfully completed at least 12 credits in mass communications. Determination of amount of credit and permission of instructor and school director must be obtained prior to registration for course. For mass communications majors only. A concentrated examination of specific areas of mass communications. Each mini-course will be five weeks in length. Topics announced in advance.

School of World Studies

R. McKenna Brown

Director and Professor (1995)
B.A. 1977 Florida A & M University
M.A. 1985 Tulane University
Ph.D. 1991 Tulane University

Christina Turner

Director of Undergraduate Programs and Associate Professor (1994)
B.A. 1982 University of Denver
M.A. 1984 University of Denver
M.A. 1987 Tulane University
Ph.D. 1992 Tulane University

The School of World Studies is a creative, interdisciplinary grouping of disciplines in the humanities and the social sciences that will provide its students with the knowledge, skills and experience necessary for success in an increasingly interdependent, globalized 21st century. Sensitivity to the values, beliefs and structures of other cultures is a necessary characteristic of community and business leaders of the next century. The ability to live and work alongside those who are perceived as different from oneself, and to recognize similarities among all humans, will become an increasingly essential attribute of an educated citizen.

To achieve its mission, the School of World Studies actively fosters and promotes a wide range of endeavors, including the establishment of interdisciplinary undergraduate and graduate programs with an international focus across the campuses, and develops close ties with such programs as African American Studies, Women's Studies, English, History, Life Sciences and other units throughout the university. In addition there are collateral requirements such as experiential learning through an approved internship, service-learning course, or study abroad program, the fulfillment of a World Passport, and advanced language skills.

Undergraduate degree programs

The School of World Studies offers baccalaureate degrees in the following fields:

- anthropology – B.S.
- foreign languages – B.A.
 - French
 - German
 - Spanish
- international studies – B.A.
- religious studies – B.A.

Information regarding curricula is given in the respective program section.

Minors and certificates

The following areas offer minors and certificates:

- anthropology
- area studies
 - African
 - Asian
 - Latin American
 - Middle Eastern
 - Russian/Eastern European
 - Western European
- Catholic studies
- French
- geography
- German
- global studies
 - the arts in global perspective
 - health in global perspective
 - international institutions and globalization
 - international relations
 - international social justice studies
 - social relations in international perspective
- international management studies (certificate)
- Italian
- Judaic studies
- Latin and Roman studies
- Native American studies
- religious studies
- Spanish

Languages

The School of World Studies offers students significant opportunities to broaden their knowledge of diverse cultures through language study, including:

- Arabic
- Biblical Hebrew
- Chinese
- French (major and minor)
- German (major and minor)
- Italian (minor)
- Latin (through Latin and Roman studies minor)
- Russian
- Spanish (major and minor)

In cases where the appropriate level of instruction is unavailable, faculty advisers will assist the student in identifying language study options at other U.S. institutions or abroad.

Experiential learning

The School of World Studies is committed to the premise that learning is best facilitated through engagement with the dynamic complexities and challenges outside the

classroom. Along with the general education requirements of the College of Humanities and Sciences for the Bachelor of Arts or Bachelor of Science degrees, students pursuing one of the majors in the School of World Studies must complete an experiential learning requirement through an approved internship, service-learning course or study-abroad program.

World Passport

As part of the School of World Studies commitment to learning through engagement, each School of World Studies student is required to fill a World Passport to introduce him or her to a breadth of the curriculum experience: cultural opportunities, experiential learning, seminars and conferences, international experiences, and multicultural campus activities. Students are required to obtain their personal World Passport from their advisers in the School of World Studies or the director of undergraduate programs in the School of World Studies. It will be reviewed by their advisers and in the respective majors' Senior Seminar course (or its equivalent).

The passports are color-coded for four different categories of activities to be completed by students before graduation from VCU with a degree from the School of World Studies. The categories are: experiential learning, professional preparation, crossing boundaries and community exposure. Respectively, the objectives of the categories are: to provide students the opportunity to demonstrate success in applying program content beyond a classroom setting, to prepare students for careers, graduate school and lifelong learning, to expose students to international and multicultural interactions and ideas, and to enhance undergraduate experience by greater involvement in community.

The instructions for successful completion of the passport requirements are printed inside the passport along with an explanation of the color-coded categories. Students are responsible for attending appropriate events, securing documentation of attendance, and stapling, taping or otherwise adhering that documentation to the appropriate area of their passport. For some category events, such as interacting with an international student, the School of World Studies students will need to enter biographical data about their consultants along with a signa-

ture. The potential events can be determined by utilizing the category descriptions noted in the passport.

Evaluation of the passport is on a pass/fail basis. Should a student lose his or her passport, he or she would be required to recreate attendance at events in essay form, or complete the requirement in some other way determined by the adviser or program coordinator.

Study abroad

Majors and minors in the School of World Studies are encouraged to participate in a study-abroad program. Summer study-abroad programs provide students with opportunities for short-term immersion in the language, culture and civilization of the countries they visit. Currently, study-abroad programs through VCU are available to Austria, Canada, France, Germany, Guatemala, Italy, Mexico, Russia and Spain. VCU is a member of the International Student Exchange Program, which offers a junior year abroad at one of 40 universities worldwide.

Courses in world studies (WRLD)

WRLD 210 International Social Justice Studies

Semester course; 3 lecture hours. 3 credits. An overview of the issues, themes, disciplines, and areas of research and teaching that comprise international social justice studies in a variety of global contexts.

WRLD 220 Human Rights and Literature

Semester course; 3 lecture hours. 3 credits. A cross-cultural survey of human rights violations. The moral, political and pragmatic dimensions in the international response to violations are investigated including transnational organizations that document abuses as expressed in memoirs, eyewitness accounts, literature and film.

Anthropology

Amber Bennett

Program Coordinator (2001)

The Bachelor of Science curriculum in anthropology seeks to ensure that each student develops a solid foundation in the basic principles, theories and techniques of analysis. Since students majoring in anthropology vary in their interests and career goals, the curriculum allows for a great deal of flexibility developing individual courses of study. Students who are interested in pursuing graduate studies in anthropology will usually take more than the minimum

number of upper-level courses. The department provides opportunities for involvement in faculty research through its course offerings, which include independent study, internships and honors research.

Degree requirements – Bachelor of Science in Anthropology

The Bachelor of Science curriculum in anthropology requires a minimum of 120 credits, with at least 36 of those credits in anthropology, 25 of which must be in upper-level (300, 400 or 500) courses. The remaining 11 credits may be in related social science and humanities disciplines as approved by the adviser. A maximum of 12 credits from internships and/or independent studies may be counted toward the major. For graduation, students must maintain at least a 2.25 GPA in the major courses.

Students must take the following core courses and attain a "C" grade in each course:

Core requirements

ANTH/INTL 103 Introduction to Anthropology

ANTH 301/BIOL 341 Human Evolution

ANTH 302 Archaeological Theory or ANTH 303

Archaeological Methods and Research Design

ANTH/ENGL/LING 449 Introduction to Linguistics

ANTH 454 Anthropological Theory and Practice

ANTH 499 Senior Seminar

Collateral requirements

- take one introductory course in geography, history, international studies or sociology (not included in the 36 credits for the major).
- fulfill an experiential learning requirement through an approved internship, service-learning course or study-abroad program.
- demonstrate competency in one language through the advanced (301) level or in two languages through the intermediate (202/205) level.

Anthropology majors are strongly encouraged to complete a minor, preferably one of the minors offered in World Studies. Students should refer to the listing in the general description of the School of World Studies.

Minor in anthropology

An anthropology minor shall consist of 18 credits in anthropology, including ANTH/INTL 103 Introduction to Anthropology. At least 15 credits must be taken from upper-level (300-400) anthropology courses.

Honors in anthropology

Majors in the Anthropology Program may earn a Bachelor of Science degree with honors in anthropology. Participation in Honors Thesis research is available to outstanding senior majors and involves the preparation of a senior thesis during the last two semesters of the baccalaureate degree program.

In order to participate in the program, students must meet program entrance requirements, identify a project mentor and receive approval for a project proposal. Honors will be awarded following acceptance of the thesis by the Honors Thesis Committee (HTC). The committee will consist of at a minimum the project mentor, one other member of the anthropology faculty and one faculty member from outside of the anthropology program.

The project may involve any recognized anthropological topic, theory and/or method that promises to enhance the student's disciplinary perspective, skills and creativity. The project may involve an extension of work initiated in a course, an entirely new project or a collaborative project with the faculty mentor. If the project is an extension of work initiated in a course or developed collaboratively with the mentor, independent, separate, substantial development of the topic in the thesis should be evident in the final product. The thesis should reflect work of high quality for a senior-level course.

Students majoring in the Anthropology Program are eligible to participate in the departmental honors program if they have maintained at least a 3.0 overall GPA and at least a 3.3 GPA in the major. Application materials consist of transcripts documenting the required GPAs, and a five to seven page proposal (including a history and description of the proposed project, an annotated bibliography of relevant sources, a work plan and schedule for completion of the project) and a letter of endorsement from the faculty member who has agreed to act as project mentor. Applications must be made and project approval received no later than the first two weeks of classes in the semester in which the project will commence. A departmental committee will review the application materials, meet with the candidate to discuss the project proposal as needed and render an admission decision. Once admitted, program participants will enroll in ANTH 497. The course may be included in the required hours for the major.

Students will complete six credit hours (over two sequential semesters in their senior year) in ANTH 497 and ANTH 498. The student's work will be evaluated by the project mentor and a departmental committee at the end of the first semester (ANTH 497) and a grade will be assigned. If allowed to continue, the student will enroll in ANTH 498 the subsequent semester. At the completion of ANTH 498, the completed senior honors thesis will be submitted to the HTC following its acceptance by the faculty mentor and confirmation that the candidate has maintained the requisite GPAs.

Upon submission of the thesis, the student will make an oral presentation (to be made no later than two weeks before the end of classes) to the HTC and other faculty as deemed appropriate, summarizing the research procedures and findings. The HTC will then evaluate the thesis for the award of honors. In order to receive honors, the thesis must be evaluated as deserving of a grade of "A." Whether or not honors are awarded, a final grade will be submitted for ANTH 498. The awarding of honors for the thesis will earn an Honors Certificate from the department and notation of the student's standing as an honors graduate on the final grade transcript. Students must submit a final copy of the thesis to both the department and the VCU Library no later than the last day of classes.

Undergraduate topics courses

Topics courses in anthropology (ANTH 391) are an integral part of the program and provide a rare opportunity for the advanced student. Generally these courses are restricted to a small number of students who share specialized interests in a topic that is either too advanced or too limited in its general appeal to justify its inclusion as a standard offering. At least one such course is offered each semester and the topics course can be repeated up to a maximum of 18 credits as long as there is no duplication of the topics.

Independent study

This course (ANTH 492) is designed for advanced students capable of doing independent work on selected topics under the directions of specific faculty. Students may earn a total maximum of 12 credits in departmental independent study courses and internship credits, but may not enroll for more than six credits per semester in

independent studies. Only majors in anthropology or related fields can enroll in these courses. All students entering these courses must have completed a minimum of 12 credits in anthropology and have an anthropology GPA of 3.0 or more.

Internship

This course (ANTH 493) is designed for advanced students capable of being of service to and benefiting from workplace experience in organizations (outside of VCU) willing to offer supervised work or research experience appropriate to the student's anthropological interest. Applications must be approved by a faculty adviser and by the anthropology coordinator. Each student must work a minimum of 40-50 clock hours per credit hour in the organization and submit to the faculty adviser a summary of their activities and their relevance to the field and the student's course work. Students may earn a total maximum of 12 credit hours in internship credits and independent study courses, but may not enroll for more than six credits per semester in internship credits. All students enrolling in an internship must have an anthropology GPA of 3.0 or more.

Courses in anthropology (ANTH)

ANTH 103/INTL 103 Introduction to Anthropology

Semester course; 3 lecture hours. 3 credits. A general survey of anthropology with emphasis on learning about and from global cultures, and on the four fields of anthropology.

ANTH 105/INTL 104 Introduction to Archaeology
Semester course; 3 lecture hours. 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era.

ANTH 200/AFAM 200/INTL 200 Introduction to African Societies

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

ANTH 301/BIOL 341 Human Evolution

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" or better in ENGL 200. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology, and growth and development. Not applicable for credit toward the B.S. in biology.

ANTH 302 Archaeological Theory

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105 and a "C" or better in ENGL 200. Covers the basic theoretical perspectives and tools of archaeology, including analysis and interpretation of archaeological materials. Students will review the intellectual history of archaeology, applying a variety of theoretical approaches to archaeological data sets and sites.

ANTH 303 Archaeological Methods and Research**Design**

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105 and a "C" or better in ENGL 200. Introduces the basic practices of archaeology, including planning, excavation, artifact analysis, documentary research, mapping, dating sites and artifacts, and interpretation and presentation of findings. Students will participate in an active field research program and will apply methods at an active site and lab.

ANTH 304/SOCY 304/WMNS 304 The Family

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or ANTH 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

ANTH 305/INTL 305 Comparative Perspectives on Cultures and Societies

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures.

ANTH 310/FRSC 310 Forensic Anthropology

Semester course; 3 lecture hours. 3 credits. A comprehensive overview of forensic anthropology, including its development and the theory and methodology on which it is based.

ANTH 312/GEOG 312 History of Human**Settlement**

Semester course; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the middle ages.

ANTH 315 Anthropological Field Methods and Research Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103. Overview of quantitative and qualitative anthropological field techniques as well as the ethical dimension of anthropological fieldwork. Basics of research design, effective methodology and writing grant proposals.

ANTH 348/INTL 348 South American**Ethnography**

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact.

ANTH 349/INTL 349 Rethinking a Continent:**Latin America**

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts

from social justice studies, development anthropology and applied anthropology.

ANTH 350/INTL 350 Rethinking a Continent:**Europe**

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. A survey of historical sociocultural developments from an anthropological perspective with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in Europe. Introduces concepts from sociocultural anthropology, social justice studies and applied anthropology.

ANTH 375 Field Archaeology

Semester course; 3 lecture, 8 field and laboratory hours. 6 credits. Introduction to archaeological field and basic laboratory techniques. Archaeological data collection (excavation or survey) forms the core of the course.

ANTH 386/ENGL 386 Introduction to Folklore

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in 200-level literature courses (or equivalent). A survey of the basic forms of folklore including proverbs, riddles, ballads, folktales, legends, myths and games. The survey also will include approaches to collecting material and examining its literary, social and historical significance.

ANTH 391 Topics in Anthropology

Semester course; 3 lecture hours. 3 credits. Maximum six credits per semester; maximum total of 18 credits in departmental topics courses that may be applied to the major. Prerequisite: Permission of instructor. Seminar on current specialized areas of anthropological interest. See the Schedule of Classes for specific topic to be offered each semester.

ANTH 394/HIST 394 Historical Archaeology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105 and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of archaeological research from the United States, Europe and Africa will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Students will participate in field research.

ANTH 403/BIOL 403 Primatology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 301. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology. Not applicable for credit toward the B.S. in biology.

ANTH 415/INTL 415 Economic Anthropology

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the study of traditional subsistence economies are used to examine modern industrialized societies.

ANTH 416/AFAM 416 The Origin and Evolution of the Idea of Race

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or AFAM 103 or permission of instructor. This course is an exploration of the origins and social

history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon.

ANTH 420/AFAM 420/INTL 420 Women of Africa

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or AFAM 103 or permission of instructor. This course looks at the traditional roles of women in African Societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context.

ANTH 425/RELS 425/INTL 425 Religion, Magic and Witchcraft

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society.

ANTH 440/AFAM 440 Contemporary Art and Architecture of Africa

Semester course; 3 lecture hours. 3 credits. A study of the impact on African art and architecture of colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists.

ANTH 449/LING 449/ENGL 449 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ANTH 450/ENGL 454/INTL 454 Cross-cultural Communication

Semester course; 3 lecture hours. 3 credits. A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems.

ANTH 454 Anthropological Theory and Practice

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103; a minimum of six credits of 300-, 400- and 500-level anthropology courses; limited to seniors. A study of the connections between theoretical work that addresses understandings of culture and methodological practice centered on creating ethnography.

ANTH 455/INTL 455 Anthropology of Development and Globalization

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL 101. May be taken for a maximum of nine credit hours in three different world areas. Consists of a global study of the developing Third World with particular emphasis on rural populations, subsistence farmers, indigenous groups and small entrepreneurs. Focuses on development and globalization while providing insights into the peasantry as a class, women in peasant societies, changes in peasant societies and the peasantry as a player in the policies of the modern state.

ANTH 457/WMNS 457 Women, Art and Society
Semester course; 3 lecture hours. 3 credits. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?"

ANTH 492 Independent Study
Semester course; variable credit. Maximum of six credits per semester; maximum total of 12 credits for all independent study and internship courses. Prerequisites: Determination of the amount of credit and permission of the instructor and the group coordinator must be procured prior to enrollment in the course; a minimum GPA of 3.0 in the major. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the anthropology program.

ANTH 493 Internship
Semester course; variable credit. May be repeated for a total of 12 credits, but the maximum total for all internship and independent study courses is 12 credits. 40 to 50 hours per credit at the placement site. Prerequisites: Determination of the amount of credit and permission of the instructor and the group coordinator must be procured prior to enrollment in the course; a minimum GPA of 3.0 in the major. Placement of the students will provide appropriate supervised work experience. The setting will vary depending on the nature of the internship and the student's goals. This course is designed to enhance the major's career pursuits for either graduate-level training or post-baccalaureate employment.

ANTH 497-498 Honors in Anthropology
Continuous course; 3 lecture hours. 3-3 credits. Design and completion of a long-term research project in the major. The thesis project is the culmination of an advanced course of study within the anthropology program. Under the supervision of a faculty mentor, students must demonstrate a thorough understanding and use of anthropological research techniques and analysis, a knowledge of relevant literature, and sophisticated writing and research abilities. Students must apply to program for participation in honors thesis work. See Bulletin for eligibility criteria and application procedure.

ANTH 499 Senior Seminar
Semester course; 1 lecture hour. 1 credit. Prerequisites: Completion of 15 credits in anthropology at the 300 and 400 level or the equivalent in anthropology; senior standing. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation, and on lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the anthropology program.

ANTH 556/ENVS 556 Historical and Cultural Landscapes
Semester course; 3 lecture hours. 3 credits. Open only to seniors who have completed ANTH 302 or 303 and graduate students with permission of instructor. Students will study historical and contemporary landscapes as the products of and the producers of human culture, with particular attention to riverine landscapes. Focus will be on the ways in which humans shape and respond to

their ecosystems. Students will participate in an active field research program, including the archaeological recovery and analysis of historical landscapes.

Foreign Languages

Angelina Overvold
Program Coordinator, French (1991)
B.A. 1971 St. Olaf College
M.A. 1975 University of Michigan
Ph.D. 1996 Brown University

Paul F. Dvorak
Program Coordinator, German, and Professor (1974)
B.A. 1968 La Salle College
M.A. 1970 University of Maryland
Ph.D. 1973 University of Maryland

Robert Sims
Program Coordinator, Spanish (1976)
B.A. 1966 University of Michigan
M.A. 1968 University of Wisconsin
Ph.D. 1973 University of Wisconsin

Along with a broad-based liberal education in the humanities, the Bachelor of Arts in Foreign Languages prepares students for careers requiring a knowledge of a foreign language and the various sociocultural environments of its speakers; for graduate study in diverse fields; and for teaching French, German or Spanish.

The department offers the Bachelor of Arts in Foreign Languages, with tracks in French, Spanish and German.

The Department of Foreign Languages also offers courses in foreign literature in English translation and the cultures of other countries. These courses do not satisfy general education language requirements or foreign language major requirements.

All VCU students wishing to continue their high school language must take the Foreign Language Placement Test. While credit is not granted by the test, appropriate levels of placement may fulfill certain graduation requirements. Students, once placed into a level, may not take courses on a lower level for credit. Transfer students will receive the credits granted by the institution from which they transfer. Consult specific language requirements for the Bachelor of Arts or Bachelor of Science degrees.

Language majors are strongly encouraged to study two years of a second language and/or to complete a minor, preferably one of the minors offered in World Studies. Students should refer to the listing in the general description of the School of World Studies.

Study abroad opportunities

Majors and minors in the Department of Foreign Languages are encouraged to participate in a study-abroad program. Programs for students interested in living and studying abroad during the summer offer students opportunities for short-term immersion in the language, culture and civilization of the countries they visit. Currently, study-abroad programs through VCU are available to Austria, Canada, France, Germany, Guatemala, Italy, Mexico, Russia and Spain. VCU is a member of the International Student Exchange Program, which offers a junior year abroad at one of 40 universities worldwide.

Minimum major and minor requirements for transfer students

Transfer students planning to major in a foreign language must complete a minimum of two 400-level courses within the department. Credit and distribution requirements must be satisfied by all students.

For the minor, course work must include at least two courses at the 300 level or above in the chosen language area.

Degree requirements – Bachelor of Arts in Foreign Languages with a track in French, German or Spanish

The degree program requires a minimum of 120 credits, with at least 30 of those credits in upper-level courses in French or German, and 31 credits in Spanish. Along with the general requirements for the B.A. degree, foreign language students in Spanish must take the 295 gateway course (exemptions from the 295 course are made on a case by case basis) and these courses from the corresponding track:

- 300 and 301 Advanced Grammar and Writing
- 305 Advanced Conversation (or 311 in German)
- 320 and 321 Civilization and Culture I and II
- 330 and 331 Survey of Literature
- 495 Spanish Portfolio Seminar (1 credit; Spanish only)

To complete the major, students select nine hours of course work at the 400 level. Along with the general education requirements of the College of Humanities and Sciences for the Bachelor of Arts degree, students concentrating in French, German or Spanish must complete an experiential learning requirement through an approved internship, service-learning course, independent study,

study-abroad program or other means as approved by the adviser.

Transfer students who intend to major in a foreign language must take a minimum of two 400-level courses at VCU in the chosen language area. Both credit and distribution requirements for the major must be satisfied.

Foreign language minors must take at least two 300- or 400-level courses at VCU in the chosen language area.

Minor in French, German, Italian or Spanish

A minor in French, German, Italian or Spanish requires at least 18 credits in the chosen language, none of which may be earned at the 100 level. Only six credits may be earned by completing 201, 202 or 205. At least 12 credits must be taken at the 300 level or above. Note: Language Placement Test results cannot substitute for completion of course work.

Minor in Latin and Roman studies

A minor in Latin and Roman studies requires at least 21 credits: a minimum of 15 credits in Latin language, none of which may be earned at the 100 level; and up to six credits in classical studies, selected from:

ARTH 305 Classical Art and Architecture
 ARTH 405 Studies in Greek, Etruscan and Roman Art and Architecture
 HIST 303 Greek Civilization
 HIST 304 Roman Civilization
 HIST 305 Introduction to Greek Archaeology
 HIST 490 Seminar in History (when topic is appropriate)
 EUCU 311 Classical Mythology
 LASK 203 Classical Elements in the English Language
 Other courses as approved by adviser

Note: Language Placement Test results cannot substitute for completion of course work.

Extended Teacher Preparation Program

Foreign language majors interested in teaching early, middle, secondary, or special education can enroll in an Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in one of the foreign languages mentioned above and a master's in teaching. Similar opportunities exist for students in a variety of majors who pursue the Latin and Roman studies minor. For additional information about this program administered jointly by the College of Humanities and Sciences and

the School of Education, contact the School of Education's Office of Student Services.

Courses in European cultures (EUCU)

EUCU 307 Aspects of German Culture

Semester course; 3 lecture hours. 3 credits. A broad interdisciplinary approach to an understanding of German culture, language and literature. Lectures in English by guest speakers and/or use of films as required. This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.

EUCU 311 Classical Mythology

Semester course; 3 lecture hours. 3 credits. The basic myths of the Greek and Roman heritage. Their impact in culture then and now; from the origins of Greek myth to the superstitions of the late Roman and early Christian world.

Courses in foreign languages (FRLG)

FRLG 101-102 Foreign Languages: _____

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral skills. Course may be repeated with different languages.

FRLG 201 Foreign Languages: _____

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 102 or equivalent. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills. Course may be repeated with different languages.

FRLG 202 Foreign Languages: _____

Semester course; 3 lecture hours. 3 credits. Prerequisite: FRLG 201 or equivalent. Designed to increase the student's proficiency through the study of selected cultural and literary texts. Course may be repeated with different languages.

FRLG 203/INTL 203 Language and Identity

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to both the cohesive and divisive dynamics that language exerts in the world today. Students explore the links connecting different peoples who share a common language as well as their language conflicts in a multilingual world. Students examine the interaction of language with identity in culture, art and nationalism through fiction and nonfiction texts, films and multimedia pertaining to a specific language area, such as: The Francophone World, post-Franco Spain, post-Cold War Germany, the Mayan World or the Swahili World. See the Schedule of Classes for areas being offered in a particular semester.

FRLG 204/INTL 204 Language and Groups in the United States

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language group, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for areas being offered in a particular semester.

FRLG 345/INTL 345/URSP 350 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. Course may be repeated under different topics for a total of six credits. Prerequisite: Sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

FRLG 490 Foreign Languages Urban Internship

Semester course; 50 to 150 clock hours in local, national or international urban internship placement where the use of a foreign language is required. 1-3 credits. Prerequisites: Prior completion of nine credits in a foreign language at the 300 level, with a course in advanced grammar and composition, one in conversation and one in civilization. Under the supervision of both a faculty member and a field supervisor, students will apply their linguistic skills in an approved work situation and each internship will be specifically designed in accordance with the student's linguistic level and the job requirements. Students studying languages in which the 300-level courses are not available will be handled on a case by case basis in the screening process. All students will be screened before acceptance. Students wishing to undertake a non-urban project will register for an independent study.

Courses in foreign literature in English translation (FLET)

FLET 321 Early German Literature

Semester course; 3 lecture hours. 3 credits. Changing perspectives in German literature from its pagan beginnings, through the Medieval Golden Age, Baroque extremism, the Enlightenment and Storm and Stress up to Classicism and Goethe's Faust. Treatment of The Nibelungenlied, the courtly epic, *Simplicissimus*, and selections by Lessing, Schiller and Goethe. (This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.)

FLET 322 Modern German Literature

Semester course; 3 lecture hours. 3 credits. Growing psychological awareness and alienation of the individual in German literature of the 19th and 20th centuries. Representative works chosen from among writers of the past century and such modern writers as Thomas Mann, Kafka, Hesse, Brecht, Kafka, Hesse, Brecht, Boll and Grass. (This course will not satisfy foreign language requirements. No knowledge of German is required. All work is done in English.)

FLET 391/INTL 391 Topics in Foreign Literature in English Translation

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of selected topics in foreign literature. (This course will not satisfy foreign language requirements. No knowledge of a foreign language is required. All work is done in English.)

FLET 492 Independent Study

Semester course; 1, 2 or 3 credits. Maximum of three credits per semester, maximum total of all FLET independent study courses is six credits. Open generally to students of only junior or senior standing who have

acquired at least 12 hours in any literature course. Determination of course content and permission of the instructor and department chair must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest and for which they have the necessary background.

Courses in Chinese (CHIN)

CHIN 101-102 Elementary Chinese

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral drill.

CHIN 201-202 Intermediate Chinese

Continuous course; 3 lecture hours. 3-3 credits. Rapid review of the essentials of grammar, conversation and readings from Chinese literature.

Courses in French (FREN)

FREN 101-102 Elementary French

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral drill.

FREN 110 Intensive French I

Semester course; 10 lecture and lab hours. 8 credits. This intensive course combines FREN 101 and 102 into a single semester.

FREN 201 Intermediate French

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

In order to complete French through the intermediate level, a student may select FREN 202 or 205.

FREN 202 Intermediate French Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201 or the equivalent. Designed to increase the student's proficiency through the study of selected cultural and literary texts. In order to complete French through the intermediate level, a student may select FREN 202 or 205.

FREN 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201 or the equivalent. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation. In order to complete French through the intermediate level, a student may select FREN 202 or 205.

FREN 210 Intensive French II

Semester course; 6 lecture and lab hours per week. 6 credits. Prerequisites: Successful completion of FREN 101 and 102, or FREN 110. This intensive course combines FREN 201 and 202/205 into a single semester.

Non-foreign language majors who wish to take one or two upper-level classes only need to complete FREN 202, 205 or equivalent.

FREN 295 Gateway to the French Major/Minor

Semester course; 3 lecture hours. 3 credits. Prerequisite: FREN 201 or permission of instructor. This course is composed of three different areas: 1) writing and analytical skills: enhancement of grammatical and writing skills and development of analytical techniques using a variety of texts; 2) improving students' oral communication; 3) listening skills: extensive use of recorded material and Language Learning Center resources to improve and enhance listening skills in a variety of authentic contexts. Non-foreign language majors who wish to take one or two upper-level classes only need to complete FREN 202, 205 or equivalent.

FREN 300, 301 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: French courses through the intermediate level or the equivalent. Conducted in French. A systematic review of French grammar with emphasis on the elements of style and vocabulary building; translation and composition.

FREN 305 Advanced Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisites: French courses through the intermediate level or the equivalent. Conducted in French. Development of advanced oral skills while conversing about topics on current French culture and society. Proficiency in listening comprehension is stressed through regular activities based on a variety of different situations of communication.

FREN 320 French Civilization and Culture I

Semester course; 3 lecture hours. 3 credits. Prerequisites: French courses through the intermediate level or the equivalent. Conducted in French. A survey of French civilization and culture from its origins to the French Revolution. Introduction to and analysis of the most important aspects of Gallo-Roman society and of the Merovingian, Carolingian and Capetian dynasties which influenced the institutions of the Ancien Regime and still serve as cultural archetypes and icons in contemporary French culture.

FREN 321 French Civilization and Culture II

Semester course; 3 lecture hours. 3 credits. Prerequisites: French courses through the intermediate level or the equivalent. Conducted in French. A survey of French civilization and culture from the Napoleonic era to the present. This course retraces important cultural and social traditions found during the first Empire, the Restoration, the Second Republic, the Second Empire, the Commune, the Third and Fourth Republics which influenced and continue to shape contemporary French civilization and culture of the Fifth Republic.

FREN 330, 331 Survey of Literature

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: French courses through the intermediate level or the equivalent. Conducted in French. First semester: through the 18th century. Second semester: 19th and 20th centuries.

FREN 410 Explication de Textes

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Two French courses at the 300 level or permission of instructor. Conducted in French. This course provides an introduction to terms encountered in text analysis: prosody, versification, rhetorical language, narratology and genres. It presents traditional and current schools of literary criticism and applies them to an interdisciplinary selection of texts.

See the Schedule of Classes for the specific topic to be offered each semester.

FREN 420 French Regional Culture

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 320 or 321 or permission of instructor. Conducted in French. Focuses on the culture and civilization specific to each of France's 22 regions. History, culture, architecture as well as sociopolitical, linguistic identities, artisanal trades and folklore are presented for each region. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 421 French Contemporary Culture

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 320 or 321 or permission of instructor. Conducted in French. Focuses on the contemporary culture found in French society. The individuals and events shaping current French social, political, artistic and cultural life are examined. Each theme is illustrated by current audiovisual materials. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 422 French Cinema

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 320 or 321 or permission of instructor. Conducted in French. Tracing French cinema from les Froes Lumiere and Georges Melius through the New Wave to new contemporary directors, this course focuses on the thematic selections and stylistic techniques particular to French cinematographic culture. The class is offered concurrently with the annual VCU French Film Festival, thereby permitting students to directly communicate with French actors and directors participating in the festival. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 425 French Media

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 305 or permission of instructor. Conducted in French. Analysis of the French media: written press, radio and television. Advanced comprehension skills required and stressed through regular exercises pertaining to different journalistic discourses and styles. Proficiency in journalistic writing is developed in class through the creation of an electronic French newspaper on the Internet. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 430 The Middle Ages

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Chansons de geste, Litterature Courteous, Fabliaux and Poesie lyrique. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 431 The 16th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of works representative of literary schools, genres and major works of the

period: Rabelais, the Pleiade, Minting and the Baroque poets. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 432 The 17th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Baroque and Classical readings including prose, poetry and drama of the authors of the reign of Louis XIV; Pascal, La Rochefoucauld, La Bruyere, Corneille, Racine and Moliere. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 433 The 18th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: the "philosophes" including Montesquieu, Voltaire, Diderot and Rousseau and readings from Marivaux, Provost and Vauvenargues. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 434 The 19th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Romanticism, Realism, Naturalism and Symbolism. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 435 The 20th Century

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: FREN 300 or 301 or permission of instructor. Conducted in French. A contextualization and detailed study of a selection of texts representative of literary schools, genres and major works of the period: Surrealism, Existentialism, Nouveau Roman and Theater of the Absurd. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 440 Commercial French

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisite: At least one French course at the 300 level. This course introduces students to the cultural, economic and linguistic dimensions of the Francophone commercial sector. It builds the student's reading, writing, listening and speaking proficiencies through active engagement with business-related materials and activities. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 450/INTL 450 Francophone Literatures and Cultures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: FREN 300 or 301 and at least one additional French course at the 300 level or permission of instructor. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean,

North America, Asia and Europe. Also explores the impact of colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester.

FREN 491 Topics in French

Semester course; Variable credit, 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisite: Completion of six credits of French at the 300 level or equivalent. An in-depth study of selected topics in French. See the Schedule of Classes for specific topic to be offered each semester.

FREN 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester; maximum total of six credits for all independent study courses in French. Open generally to students of only junior or senior standing who have six credits of upper-level French courses and/or have a demonstrated competency in the language. Determination of course content and permission of the instructor must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Courses in German (GRMN)

GRMN 101-102 Elementary German

Continuous courses; 5 lecture/ recitation hours. 4-4 credits. Elementary grammar, reading and oral drill.

GRMN 201 Intermediate German

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

GRMN 202 Intermediate German Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201 or the equivalent. Designed to increase the student's proficiency in German through the study of selected cultural and literary texts. In order to complete German through the intermediate level, a student may elect GRMN 202, 205 or equivalent.

GRMN 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201 or the equivalent. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation. In order to complete German through the intermediate level, a student may elect GRMN 202, 205 or equivalent.

Non-foreign language majors who wish to take one or two upper-level classes only need to complete GRMN 202, 205 or equivalent.

GRMN 295 Gateway to German Major/Minor

Semester course; 3 lecture hours. 3 credits. Prerequisite: GRMN 201 or permission of instructor. This course focuses on three different areas: 1) writing and analytical skills: enhancement of grammatical and writing skills and development of analytical techniques using a variety of literary and expository texts; 2) phonetics: use and practice of native pronunciation; 3) listening skills: extensive use of recorded materials and Language Learning Center resources for the improvement of listening proficiency in a variety of authentic contexts. Non-foreign language majors who wish to take one or

two upper-level classes only need to complete GRMN 202, 205 or equivalent.

GRMN 300, 301 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. A systematic review of German grammar with emphasis on the elements of style and vocabulary building.

GRMN 305 German Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. Conducted in German. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

GRMN 311 German through the Media

Semester course; 3 lecture hours. 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. A course designed to develop language proficiency by using material available through the various media: newspapers, magazines, films, slides and radio broadcasts.

GRMN 314 Commercial German

Semester course; 3 lecture hours. 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. Designed to develop the student's ability to use German as a means of oral and written communication in the business world. Emphasis on the acquisition of technical tools necessary for business exchanges in specialized fields.

GRMN 320 German Civilization I

Semester course; 3 lecture hours. 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. Conducted in German. A survey of German and Austrian culture from their origins to the founding of the German Empire in 1871.

GRMN 321 German Civilization II

Semester course; 3 lecture hours. 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. GRMN 320 recommended. Conducted in German. A treatment of German and Austrian culture from the founding of the German Empire in 1871 to the present. Particular emphasis on life in modern-day Austria and the Federal Republic of Germany.

GRMN 330, 331 Survey of Literature

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: German courses through the intermediate level or the equivalent. Conducted in German. First semester: beginnings of German literature through the literature of the first half of the 19th century. Second semester: contemporary German literature.

GRMN 416 The Age of Goethe

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300, 301 or 320, 321. Conducted in German. A course centering on the major movements during Goethe's lifetime: enlightenment, storm and stress, classicism and romanticism. Representative literary works and their social, philosophical and political backgrounds will be studied.

GRMN 417 Intellectual Life and Culture in 19th-century Germany

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300, 301 or 320, 321. Conducted in German. The rich diversity of German intellectual and literary life in the 19th century is studied in works representing romanticism, Biedermeier, Junges Deutschland, realism and naturalism.

GRMN 420 The Turn of the Century

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300, 301 or 320, 321. Conducted in German. A course dealing with the major intellectual, philosophical, artistic and cultural trends from the turn of the century through the Weimar period as reflected in the writings of authors such as Kafka, Mann and Hesse. Includes impressionism, expressionism and neue Sachlichkeit.

GRMN 421 The Postwar German Scene

Semester course; 3 lecture hours. 3 credits. Prerequisites: GRMN 300, 301 or 320, 321. Conducted in German. A course dealing with the political, social and intellectual developments of the German-speaking countries from the end of World War II to the present as reflected in the literary works of their major authors.

GRMN 491 Topics in German

Variable credit, 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisite: Completion of six credits of German at the 300 level or equivalent. An in-depth study of selected topics in German. See the Schedule of Classes for specific topic to be offered each semester.

GRMN 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester; maximum total of six credits for all independent study courses in German. Prerequisites: GRMN 300, 301 or 320, 321. Open generally to students of only junior or senior standing who have six credits of upper-level German courses and/or have a demonstrated competency in the language. Determination of course content and permission of the instructor must be obtained prior to registration of the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

Courses in Italian (ITAL)**ITAL 101-102 Elementary Italian**

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral drill.

ITAL 201 Intermediate Italian

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

ITAL 202 Intermediate Italian Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 201 or the equivalent. Designed to increase the student's proficiency in Italian through the study of selected cultural and literary texts.

ITAL 205 Intermediate Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: ITAL 201 or the equivalent. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation.

ITAL 300 Advanced Composition and Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisites: Italian courses through the intermediate level or the equivalent. Development of advanced written and oral skills through both systematic review of Italian grammar with emphasis on the elements of style and vocabulary building, and conversational activities based on a variety of situations. Conducted in Italian.

ITAL 320 Italian Cinema: _____

Semester course; 3 lecture hours. 3 credits. Prerequisites: Italian courses through the intermediate level or the equivalent. Traces Italian cinema from Neorealism to contemporary cinema, exploring genres such as comedy and Westerns as well as landmark works by important directors such as Fellini, Lizzardi, Zavattini and Antonioni. See the Schedule of Classes for specific topic to be offered each semester. Conducted in Italian. May be repeated with different topics for a maximum of six credits.

ITAL 330 Themes in Italian Literature: _____

Semester course; 3 lecture hours. 3 credits. Prerequisites: Italian courses through the intermediate level or the equivalent. An in-depth study of selected topics in Italian texts, such as religion, identity, urbanism or health. See the Schedule of Classes for specific topic to be offered each semester. Conducted in Italian. May be repeated with different topics for a maximum of six credits.

ITAL 391 Topics in Italian

Semester course; variable credit, 1-3 credits. May be repeated with different topics for a maximum of six credits. An in-depth study of selected topics in Italian. See the Schedule of Classes for specific topic to be offered each semester.

Courses in Latin (LATN)**LATN 101-102 Elementary Latin**

Continuous course; 4 lecture hours. 4-4 credits. First semester: a study of the Latin language with emphasis on the Latin elements found in English. Latin vocabulary. Second semester: introduction to Latin authors and related aspects of Roman civilization.

LATN 201-202 Readings in Latin Literature

Continuous course; 3 lecture hours. 3-3 credits. Brief grammar review with a parallel study of political and literary trends and developments as found in several of the major Latin writers. First semester: prose, with emphasis on Cicero, Pliny the Younger and Sallust. Second semester: poetry, with selected readings from Catullus, Tibullus, Ovid and Vergil.

LATN 330 Themes in Latin Literature: _____

Semester course; 3 lecture hours. 3 credits. Prerequisites: Latin courses through the intermediate level or the equivalent. An in-depth study of selected topics such as science and medicine, law, or satire in works by authors such as Caesar, Cicero, Horace, Catullus, Ovid, Virgil, Marcus Aurelius and Lucretius. See the Schedule of Classes for specific topic to be offered each semester. May be repeated with different topics for a maximum of six credits. Texts are in the original language.

LATN 331 Representative Authors in Latin Literature: _____

Semester course; 3 lecture hours. 3 credits. Prerequisites: Latin courses through the intermediate level or the equivalent. Selected readings by authors from the Archaic Period, the Classical Age, Silver Age and Patristic Latin with a focus on their impact on the political and social agendas of the day and on us today. See the Schedule of Classes for specific topic to be offered each semester. May be repeated with different topics for a maximum of six credits. Texts are in the original language.

Courses in Portuguese (PORT)**PORT 101, 102 Elementary Portuguese**

Continuous courses; 5 lecture/recitation hours. 4, 4 credits. Elementary grammar, reading and oral skills.

PORT 201 Intermediate Portuguese

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar, with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

PORT 202 Intermediate Portuguese Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: PORT 201 or the equivalent. Designed to increase the student's proficiency through the study of selected cultural and literary texts.

Courses in Russian (RUSS)**RUSS 101-102 Elementary Russian**

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral drill.

RUSS 201 Intermediate Russian

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

In order to complete Russian through the intermediate level, a student must select RUSS 202 or 205.

RUSS 202 Intermediate Russian Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 201 or the equivalent. Designed to increase the student's proficiency through the study of selected cultural and literary texts. In order to complete Russian through the intermediate level, a student may select RUSS 202 or 205.

RUSS 205 Intermediate Russian Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: RUSS 201 or the equivalent. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation. In order to complete Russian through the intermediate level, a student may select RUSS 202 or 205.

RUSS 301, 302 Survey of Literature

Semester courses; 3 lecture hours. 3 credits. Prerequisites: RUSS 201-202 or the equivalent. Conducted in Russian. First semester: 19th century; Pushkin, Gogol, Turgenev. Second semester: late 19th and 20th centuries; Dostoyevski, Chekov and some modern Russian writers.

RUSS 491 Topics in Russian

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. An in-depth study of selected topics in Russian. See the Schedule of Classes for specific topics to be offered each semester.

Courses in Spanish (SPAN)

SPAN 101-102 Elementary Spanish

Continuous course; 5 lecture/recitation hours. 4-4 credits. Elementary grammar, reading and oral drills.

SPAN 201 Intermediate Spanish

Semester course; 3 lecture hours. 3 credits. Continuation of the essentials of grammar, with emphasis on achieving proficiency in aural comprehension, speaking, reading and writing skills.

SPAN 202 Intermediate Spanish Readings

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 201 or the equivalent. Designed to increase the student's proficiency through the study of selected cultural and literary texts. In order to complete Spanish through the intermediate level, a student may select SPAN 202 or 205.

SPAN 205 Intermediate Spanish Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisite: SPAN 201 or the equivalent. Designed to increase the student's proficiency in the spoken language through audio-oral exercises, dialogues and free conversation. In order to complete Spanish through the intermediate level, a student may select SPAN 202 or 205 or equivalent.

Non-foreign language majors who wish to take one or two upper-level classes only need to complete SPAN 202, 205 or equivalent.

SPAN 295 Gateway to Spanish Major/Minor

Semester course; 1-3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. This course is composed of three discrete modules of 1 credit each: (1 credit) Portfolio Preparation: orientation to career development in Spanish, reviewing criteria of good writing, program goals and self assessment essay to begin identifying areas of interest and strengths; (1 credit) Language Proficiency: practice and review of specifics and general areas of language proficiency; (1 credit) Computer Skills: emphasis on text processing in Spanish and tutorials for grammar and pronunciation practice. Non-foreign language majors who wish to take one or two upper-level classes only need to complete SPAN 202, 205 or equivalent.

SPAN 300, 301 Advanced Grammar and Writing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. A systematic review of Spanish grammar with emphasis on the elements of style and vocabulary building, translation and composition.

SPAN 305 Spanish Conversation

Semester course; 3 lecture hours. 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. Conducted in Spanish. Practice in the spoken language with emphasis on discussions relating to topics of current interest.

SPAN 320 Civilization of Spain I

Semester course; 3 lecture hours. 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. Conducted in Spanish. A treatment of salient manifestations of Spanish culture and civilization from its origins to the present.

SPAN 321 Latin American Civilization I

Semester courses; 3 lecture hours. 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. Conducted in Spanish. A treatment of salient manifestations of Latin American culture and Civilization from pre-Columbian times to the present.

SPAN 330 Survey of Spanish Literature

Semester courses; 3 lecture hours. 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. Conducted in Spanish. A survey of Spanish literature up to the present.

SPAN 331/INTL 331 Survey of Latin American Literature

Semester courses; 3 lecture hours. 3 credits. Prerequisites: Spanish courses through the intermediate level or the equivalent. Conducted in Spanish. An introduction to major authors and trends up to the present.

Nine credits of 300-level courses in Spanish (including those specifically required for certain courses) are prerequisites to all the following courses.

SPAN 400 Spanish Translation

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. Integrates the basic theoretical and practical aspects of translation, focused from a perspective of applied linguistics. The course includes a workshop component and students will practice both written and oral translation of diverse texts. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 401/LING 401 Comparative Structures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. A comparison of English and Spanish, with emphasis on pronunciation and problems encountered in the teaching of Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 402/LING 402 Language Issues in the Spanish-speaking World

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 403 History of the Spanish Language

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in

Spanish. A study of the evolution of Spanish from Latin through the Middle Ages to the Modern era. Historical phonology, etymology, morphology, orthography, semantics and syntax of standard Castilian. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 414 Commercial Spanish

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. This course will develop the student's ability to use the Spanish language as a means of oral and written communication in the business world. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 420 Civilization of Spain II

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level, including SPAN 320 or 321, or the equivalent (including those specifically required for certain courses). This course explores the cultural diversity and differences of Spain. Topics focus on a particular interdisciplinary theme, such as the formation of cities, ethnicity and on a particular area of Spain. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 421/INTL 421 Civilization of Latin America II

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level, including SPAN 320 or 321, or the equivalent (including those specifically required for certain courses). This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 430 Literary Genres

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. An in-depth look at the development and expression of varieties of literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 431 Literary Periods

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. An in-depth synchronic look at movements and their context in literature in Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

SPAN 485 Spanish Study Abroad

Semester course; variable credit. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Open to Spanish majors,

minors and students in other disciplines. This course offers all students the opportunity to improve their oral and written proficiency in Spanish, to enhance their awareness of cultural diversity and to become independent learners of Spanish language and the cultures of its speakers.

SPAN 491 Topics in Spanish

Semester course; Variable credits, 1-3 credits. May be repeated with different topics for a maximum of nine credits. Prerequisite: Completion of six credits of Spanish at the 300 level or the equivalent. An in-depth study of selected topics in Spanish. See the Schedule of Classes for specific topic to be offered each semester.

SPAN 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester; maximum total of six credits for all independent study courses in Spanish. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Open generally only to students of junior or senior standing who have six credits of upper-level Spanish courses and/or have demonstrated a competency in the language. Determination of course content and permission of instructor and department chair must be obtained prior to registration for the course. A course designed to give students an opportunity to become involved in independent study in a literary or linguistic area or subject in which they have an interest.

SPAN 495 Spanish Portfolio Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: Completion of 15 credits at the 300 and 400 levels or the equivalent. Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). This course focuses on self-assessment, compiling a portfolio, career preparation and on the life long application of skills and knowledge acquired in the program.

Geography

Weiping Wu

Program Coordinator and Associate Professor (1995)
 B.A. 1986 Tsinghua University
 M.U.P. 1989 Tsinghua University
 Ph.D. 1996 Rutgers University

Geography is a broad discipline that integrates both natural and social sciences. In fact, one of its strengths is its diversity of approach. Geographers are concerned with the location of activities in the world, the reasons for particular spatial distributions, and the significance of those arrangements. It focuses on regions and on the interactions between humans and the environment. Rather than adhering rigorously to particular disciplinary laws, geographers combine a variety of methods and approaches. The geography concentration is for students interested in the nature and distribution of the biophysical and cultural elements of the landscape, and in the interrelationships among them.

The geography concentration provides a strong foundation for career opportunities with public agencies or the private sector, both domestic and international, engaged in environmental management, location analysis, regional development and planning.

Degree requirements – Bachelor of Science in Urban Studies and Geography

The Bachelor of Science major in urban studies and geography requires 120 credits, including 36-37 credits depending on the concentration within the major. The program is designed so that students may enter as late as their junior year. Note: students must complete STAT 210 Basic Practice of Statistics prior to enrolling in URSP 242. It is imperative that students complete this requirement as early as possible in their program, and that URSP 242 be completed no later than the spring semester of their junior year since it is a prerequisite for URSP 306. URSP 242 is a corequisite for URSP 313. Students may substitute INFO 162 and SOCY 205/POLI 205 for URSP 242.

Qualified seniors are allowed to enroll in most 500-level courses but should consult their adviser before registering to secure permission of the instructor.

Students with a minimum GPA of 2.5 may apply for participation in the Urban Government Internship Program that provides an opportunity to work within the Richmond area and elsewhere on urban and regional problems. In general, students may not exceed 48 credits of urban studies and geography courses. However, those students who choose to participate in the internship program may exceed this maximum by three credit hours.

Core courses

- All students must successfully complete all of the following required core courses.
- GEOG 102 Introduction to Human Geography
- URSP 116 Introduction to the City
- GEOG 204 Physical Geography
- URSP 242 Computer Applications in Community Analysis
- URSP 261 Design of the City
- URSP/GEOG 306 Urban Economic Geography
- URSP/GEOG 313 Urban Research and Field Methods
- URSP/GEOG 332 Environmental Management
- URSP 541 Urban Public Policy-making Processes

Students must then select one of the following concentrations for completing the remaining 11 to 12 credits in the major. All courses marked with an asterisk are required for that concentration/track. Electives must be selected with the assistance of a faculty adviser.

Geography concentration

Students complete 11 credits from the list including the required courses (marked with an asterisk).

- GEOG 203 Physical Geography*
- GEOZ 203L Physical Geography Laboratory*
- GEOZ 204L Physical Geography Laboratory*
- GEOG/INTL 303, 304 World Regions
- GEOG/ANTH 312 History of Human Settlement
- GEOG/AFAM/INTL 333 Geography of Africa
- GEOG/INTL 334 Regional Geography of _____
- GEOG/ENVS 335 Environmental Geology
- GEOZ/ENVZ 335L Environmental Geology Laboratory
- URSP/GEOG/INTL 340 World Cities Outside of North America
- GEOG 391 Special Topics in Geography
- GEOG/ENVS 401 Meteorology and Climatology
- GEOZ/ENVZ 401L Meteorology and Climatology Laboratory
- GEOG/ENVS 411 Oceanography
- GEOG 492 Independent Study
- URSP/GEOG 302 Land Use Capability
- URSP/ENVS/GEOG 521 Introduction to Geographic Information Science
- URSP 552 Urban Transportation Systems

Generalized course of study concentration

This option is designed for those students who have a broad interest in both urban studies and geography. By self-identifying their scholarly interests and working closely with their adviser, students may tailor this concentration to match not only intellectual interests but anticipated career goals. Students may elect to complete the remaining 12 credits of the urban studies and geography major by selecting courses from both urban studies and geography.

Minor in geography

A geography minor requires 18 credits. At least six credits must be chosen from upper-level courses.

All students must take the following courses:

- GEOG 203, GEOZ 203L Physical Geography and Laboratory I

GEOG 204, GEOZ 204L Physical Geography and Laboratory II
 GEOG/INTL 303 or GEOG/INTL 304 World Regions
 GEOG/ANTH 312 History of Human Settlement

In addition, numerous upper-division electives are available.

Courses in geography (GEOG)

GEOG 102 Introduction to Human Geography

Semester course; 3 lecture hours. 3 credits. An introduction to human geography from a global perspective, emphasizing settlement patterns, human-environment interactions, cultural variations, political transitions and population change in the global economy.

GEOG 105/ENVS 105 Physical Geology

Semester course; 3 lecture hours. 3 credits. A descriptive approach to physical geology dealing with the history and structure of the earth, catastrophic events and geology as it relates to the contemporary environment. An optional laboratory may be taken with this course. See GEOZ/ENVZ 105L.

GEOZ 105L/ENVZ 105L Physical Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 105. An optional laboratory course consisting of experiments and activities related to GEOG/ENVS 105.

GEOG 203, 204 Physical Geography

Semester courses; 3 lecture hours. 3, 3 credits. Analysis of the interrelated systems of the earth. GEOG 203: the earth in space, atmosphere, climate, vegetation. GEOG 204: earth materials, tectonics, weathering, erosion, landforms, soils. GEOG 204 can be taken without GEOG 203, and vice versa.

GEOZ 203L, 204L Physical Geography Laboratory

Semester courses; 2 laboratory hours. 1, 1 credit. Pre- or corequisite: GEOG 203 for GEOZ 203L; GEOG 204 for GEOZ 204L. Problem solving and map reading exercises related to earth-sun relationships, atmosphere, weather and climate, vegetation, soils (in GEOZ 203L) and earth materials, tectonics, weathering, erosion, landforms (in GEOZ 240L). GEOZ 204L can be taken without GEOZ 203L, and vice versa.

GEOG 302/URSP 302 Land Use Capability

Semester course; 3 lecture hours. 3 credits. An introduction to the principles, concepts and knowledge involved in determining the capacity of land under various conditions to support a variety of uses.

GEOG 303, 304/INTL 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester: Anglo-America, Latin America, Western Europe, Eastern Europe, the former USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

GEOG 306/URSP 306 Urban Economic Geography

Semester course; 3 lecture hours. 3 credits. Prerequisite: URSP 242. Explores the nature of work as it is organized in urban businesses, the interdependence of industries and the reasons why different cities develop different types of economies. Policies and strategies for developing and maintaining healthy urban economies. Policies and strategies for developing and maintaining healthy urban economies will be discussed in detail. This course is a prerequisite for URSP 322 Urban Finance.

GEOG 312/ANTH 312 History of Human Settlement

Semester courses; 3 lecture hours. 3 credits. A cultural and historical geography of human migration and settlement over the earth. Topics may include agricultural and urban systems, exploration, colonization and imperialism, and changing relationships with the environment, during and since the middle ages.

GEOG 313/URSP 313 Urban Research and Field Methods

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 210. Pre- or corequisite: URSP 242 or permission of instructor. Methods of data collection, organization, and updating; the use of secondary information; applications of elementary statistical analysis and of graphic and cartographic analysis.

GEOG 332/ENVS 332/URSP 332 Environmental Management

Semester course; 3 lecture hours. 3 credits. An interdisciplinary review of domestic and international environmental problems and their underlying causes, current management frameworks, alternative management approaches and strategies, and barriers to their implementation. Other topics include: environmental history and economics, population growth, natural resources use, biodiversity, pollution.

GEOG 333/AFAM 333/INTL 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns, and cultural groupings of sub-Saharan Africa.

GEOG 334/INTL 334 Regional Geography of _____

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester.

GEOG 335/ENVS 335 Environmental Geology

Semester course; 3 lecture hours. 3 credits. Corequisite: ENVZ/GEOZ 335L. The relationship between humankind and the physical environment, Earth materials and processes, geological hazards, water, mineral and energy resources, land use and environmental health and law.

GEOZ 335L/ENVZ 335L Environmental Geology Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: GEOG/ENVS 335. Required for environmental science majors enrolled in ENVS/GEOG 335; optional for other majors. Attendance on one Saturday morning field trip required. Laboratory exercises coordinated with GEOG/ENVS 335 lectures.

GEOG 340/INTL 340/URSP 340 World Cities Outside of North America

Semester course; 3 lecture hours. 3 credits. An examination of urban habitats in a variety of geographical regions, with emphasis on their differences and their common experiences.

GEOG 391 Topics in Geography

Semester course; 1, 2, or 3 credits. This course may be repeated with different topics for a maximum of nine credits. Prerequisite: Because of changing subject matter to be treated in this course, permission of instructor is required. Students will have an opportunity to examine in detail a geographical issue of significance. See the Schedule of Classes for specific topics to be offered each semester.

GEOG 401/ENVS 401 Meteorology and Climatology

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 203 or a physical science sequence or permission of instructor. A basic, semi-quantitative course in the elements of weather and climate, their driving forces and their spatial and temporal distribution and variability. Atmospheric motions and circulation, weather forecasting, human impact on weather and climate.

GEOZ 401L/ENVZ 401L Meteorology and Climatology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: GEOG/ENVS 401. A series of laboratory and field experiments designed to quantify the elements of weather and climate and to interpret their local temporal and spatial variations.

GEOG 411/ENVS 411 Oceanography

Semester course; 3 lecture hours. 3 credits. Prerequisite: GEOG 203 or PHYS 101 or a natural science sequence or permission of instructor. A basic course in the physical, chemical and geological properties of oceans and ocean basins. Origin and character of ocean basins, properties of oceanic waters, oceanic circulation, land-sea interactions, marine environments and ecology.

GEOG 492 Independent Study

Semester course; 1-3 credits per semester. Maximum total of six credits. Prerequisites: Junior or senior standing required. Permission of the instructor and of the geography program director must be obtained prior to registering for this course. Under the supervision of a geography faculty member, a student studies a topic of mutual interest.

GEOG 521/URSP 521/ENVS 521 Introduction to Geographic Information Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. An introduction to creating and using geographically referenced databases for urban and environmental analysis and planning. Includes geographic and remote sensing data structures, global positioning systems, spatial analysis, geographic data standards, public domain software and data resources, and principles of cartography design. Lab exercises in the use of geographic information systems software tools.

International Studies

Kristin Swenson-Mendez

Program Coordinator (2001)
M.T.S. 1993 Boston University

Lynn Nelson

Program Coordinator (1972)
Ph.D. 1971 Ohio State University

The International Studies Program (ISP) is designed to increase student awareness of and sensitivity to the traditions, values, aspirations and concerns of people in other parts of the world. To complete the major or the minor, students may focus on a wide range of issues — cultural, social, economic and political — that confront the world community or on a specific geographic area. Both options seek to introduce students to insights offered by a variety of cross-cultural disciplines and courses.

Although these programs are coordinated through the College of Humanities and Sciences, they are open to all VCU undergraduate students, and they allow students to earn a major or a minor in one of the program areas while simultaneously completing their requirements for the baccalaureate degree.

The ISP director coordinates the various components of the program, provides general advice to students, makes referrals for advising students depending on the chosen concentration, works closely with faculty in appropriate departments who are responsible for a particular concentration and provides the final approval to certify that the major or a minor has been completed.

All relevant information about the international studies major and minors, including approved lists of courses for the various concentrations, is available from the ISP Web site at <http://www.has.vcu.edu/wld/academics/majors/intstudies>.

Degree requirements – Bachelor of Arts in International Studies

The Bachelor of Arts degree with a major in international studies requires a minimum of 120 credits. At least 31 credits must be in the major with a minimum 2.25 GPA. A minimum of 21 credits toward the major must be taken in upper-level (300 or 400) courses from the listings below. International studies majors also must complete the course requirements for a minor in one of the

following fields: anthropology, economics, business (general business minor), French, German, history, Italian, Latin and Roman studies, political science, sociology, Spanish or urban studies. Double majors are strongly encouraged.

Collateral requirements

Along with the general education requirements of the College of Humanities and Sciences for the Bachelor of Arts degree, students majoring in international studies must complete the following:

- foreign language studies through the advanced level (300, 305, 320 or 321) by course or placement, unless this level of instruction is not available in a chosen language. In such cases, faculty advisers will assist the student to identify appropriate language study options at other U.S. institutions or abroad;
- an experiential learning requirement through an approved internship, service-learning course or study-abroad program.

Core requirements (10 to 11 credits)

All international studies majors are required to complete the following courses:

- INTL 101 Human Societies and Globalization or INTL/POLI 105 International Relations (three to four credits)
- INTL/POLI 365 International Political Economy or INTL/ANTH 455 Anthropology of Development and Globalization or INTL 490 Seminar in International Issues (three credits)
- Either INTL 493 International Studies Internship or INTL 398 Directed Study Abroad (or other approved study-abroad experience) or an approved service-learning course (three credits)
- INTL 499 Senior Seminar (one credit)

Concentration requirements – global studies or area studies (21 credits)

Students pursuing a Bachelor of Arts degree with an international studies major must complete the requirements of either one of the program's six global studies concentrations or one of the program's six area studies concentrations. Students are required to complete any prerequisites noted for any courses by individual departments.

Global studies concentrations

The arts in global perspective

The following three courses (nine credits) are required:

1. ARTH 207 Introduction to Non-Western Art
2. INTL/ENGL 211 Contemporary World Literature
3. INTL/MHIS 220 Introduction to World Music

Students are required to complete four courses (12 credits) from Concentration List A as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Health in global perspective

The following three courses (nine credits) are required:

1. ANTH/INTL/RELS 425 Religion, Magic and Witchcraft
2. LFSC/RELS 401 Faith and Life Sciences
3. PHIL 213 Ethics and Health Care

Students are required to complete four courses (12 credits) from Concentration List L as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

International institutions and globalization

The following three courses (nine credits) are required:

1. INTL/POLI 361 Issues in World Politics
2. INTL/POLI 362 International Organizations and Institutions
3. INTL/AFAM/ECON 315 Economic Development

Students are required to complete four courses (12 credits) from Concentration List B as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

International relations

The following courses (three to nine credits) are required:

1. INTL/POLI 105 International Relations (if not used as a core requirement)
2. INTL/POLI 361 Issues in World Politics
3. INTL/POLI 365 International Political Economy (if not used as a core requirement)

Students are required to complete two to four courses (six to 12 credits) from Concentration List C as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

International social justice studies

The following three courses (nine credits) are required:

1. WRLD 210 International Social Justice Studies
2. WRLD 220 Human Rights and Literature
3. RELS 340/INTL 341 Global Ethics and the World's Religions

Students are required to complete two to four courses (six to 12 credits) from Concentration List M as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Social relations in international perspective

The following three courses (nine credits) are required:

1. INTL/ANTH 103 Introduction to Anthropology
2. INTL/FRLG 203 Language and Identity
3. INTL/SOCY 330 Global Societies: Trends and Issues

Students are required to complete four courses (12 credits) from Concentration List D as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Area studies concentrations

Area studies students must complete foreign language study of the region through the advanced level (300, 305, 320 or 321) and an approved language and cultural immersion experience in that region.

African studies

The following three courses (nine credits) are required:

1. HIST/AFAM 105 or 106 Survey of African History
2. INTL/ANTH/AFAM 200 Introduction to African Societies
3. INTL/POLI/AFAM 356 Government and Politics of Africa

Students are required to complete four courses (12 credits) from Concentration List E as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Asian studies

The following three courses (nine credits) are required:

1. HIST 108 Survey of East Asian Civilizations
2. ARTH 146 Survey of Asian Art
3. INTL/RELS 311 Religions of the World

Students are required to complete four courses (12 credits) from Concentration List F as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Latin American studies

The following three courses (nine credits) are required:

1. HIST 109 or 110 Survey of Latin American History
2. INTL/ANTH 349 Rethinking a Continent: Latin America
3. SPAN 321 Latin American Civilization I or INTL/POLI 353 Latin American Governments and Politics

Students are required to complete four courses (12 credits) from Concentration List G as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Middle Eastern studies

Students are required to complete seven courses (21 credits) from Concentration List H as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Russian and Eastern European studies

The following three courses (nine credits) are required:

1. HIST 321 or HIST 322 History of Russia
2. INTL/SOCY 328 Russian Society in Transition
3. INTL/POLI 354 Russian and Post-Soviet Politics

Students are required to complete four courses (12 credits) from Concentration List I as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Western European studies

The following three courses (nine credits) are required:

1. HIST 101 Survey of European History
2. INTL/POLI 352 European Governments and Politics
3. HIST 336 Modern European Intellectual History

Students are required to complete four courses (12 credits) from Concentration List J as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Minors in international studies

Students may select one of the following options:

1. **Global studies minor.** Students may focus on the arts in global perspective, health in global perspective, international institutions and globalization, international relations, international social justice studies, or social relations in international perspective.
2. **Area studies minor.** Students may focus on African studies, Asian studies, Latin American studies, Middle Eastern studies, Russian and East European studies, or Western European studies.
3. **Native American studies minor.** Students examine colonization, focusing on a range of cultural, artistic, social and historical issues that confront the indigenous peoples of the Americas.

Global studies minor (21 credits)

1. **Core courses** (six credits):
 - INTL 101 Human Societies and Globalization or INTL/POLI 105 International Relations or INTL/POLI 365 International Political Economy or INTL/ANTH 455 Anthropology of Development and Globalization

- INTL 493 International Studies Internship or INTL 398 Directed Study Abroad (or other approved study abroad experience) or INTL 490 Seminar in International Issues

2. Concentration requirements (15 credits)

Students select one of the following concentrations:

- a. The arts in global perspective
 - Complete two of the following three courses (six credits):
 - ARTH 207 Introduction to Non-Western Art
 - INTL/ENGL 211 Contemporary World Literature
 - INTL/MHIS 220 Introduction to World Music
 - Students are required to complete three additional courses (nine credits) from Concentration List A as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)
- b. Health in global perspective
 - Complete two of the following three courses (six credits):
 - ANTH/INTL/RELS 425 Religion, Magic and Witchcraft
 - LFSC/RELS 401 Faith and Life Sciences
 - PHIL 213 Ethics and Health Care
 - Students are required to complete three courses (nine credits) from Concentration List L as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)
- c. International institutions and globalization
 - Complete two of the following three courses (six credits):
 - INTL/AFAM/ECON 315 Economic Development
 - INTL/POLI 361 Issues in World Politics
 - INTL/POLI 362 International Organizations and Institutions
 - Students are required to complete three additional courses (nine credits) from Concentration List B as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)
- d. International relations
 - Complete two of the following courses when not used as core courses (three to six credits):
 - INTL/POLI 105 International Relations
 - INTL/POLI 361 Issues in World Politics
 - INTL/POLI 365 International Political Economy
 - Students are required to complete three additional courses (nine credits) from Concentration List C as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)
- e. International social justice studies
 - Complete two of the following courses (six credits):
 - WRLD 210 International Social Justice Studies
 - WRLD 220 Human Rights and Literature

RELS 340/INTL 341 Global Ethics and the World's Religions

- Students are required to complete three courses (nine credits) from Concentration List M as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

f. Social relations in international perspective

- Complete two of the following three courses (six credits):
INTL/ANTH 103 Introduction to Anthropology
INTL/FRLG 203 Language and Identity
INTL/SOCY 330 Global Societies: Trends and Issues
- Students are required to complete three additional courses (nine credits) from Concentration List D as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Area studies minor (21 credits)

1. **Collateral requirements.** Students in the area studies minors must complete foreign language study of the region through the intermediate level (202 or 205). If this level of instruction is not available in a chosen language, faculty advisers will assist the student to identify appropriate language study options at other U.S. institutions or abroad. Three credits of intermediate language credit may be applied toward the area studies minor. Native speakers of a language cannot use intermediate credit in that language as part of the credits for the area studies minor.

2. **Core courses** (three credits)

INTL 493 International Studies Internship or INTL 398 Directed Study Abroad (or other approved study abroad experience) or INTL 490 Seminar in International Issues

3. **Concentration requirements** (15 credits)

Students select one of the following concentrations:

a. African studies

- Complete two of the following three courses (six credits):
HIST/AFAM 105 or HIST/AFAM 106 Survey of African History
INTL/ANTH/AFAM 200 Introduction to African Societies
INTL/POLI/AFAM 356 Government and Politics of Africa
- Students are required to complete three additional courses (nine credits) from Concentration List E as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

b. Asian studies

- Complete two of the following three courses (six credits):
ARTH 146 Survey of Asian Art
HIST 108 Survey of East Asian Civilizations

POLI/INTL 355 Asian Governments and Politics

- Students are required to complete three additional courses (nine credits) from Concentration List F as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

c. Latin American studies

- Complete two of the following three courses (six credits):
HIST 109 or HIST 110 Survey of Latin American History
INTL/ANTH 349 Rethinking a Continent: Latin America
INTL/POLI 353 Latin American Governments and Politics
- Students are required to complete three additional courses (nine credits) from Concentration List G as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

d. Middle Eastern studies

- Complete two of the following three courses (six credits):
ARTH 103 Survey of Western Art I
HIST 328 Modern Middle East
INTL/POLI 351 Governments and Politics of the Middle East
- Students are required to complete three additional courses (nine credits) from Concentration List H as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

e. Russian and Eastern European studies

- Complete two of the following three courses (six credits):
HIST 321 or HIST 322 History of Russia
INTL/SOCY 328 Russian Society in Transition
INTL/POLI 354 Russian and Post-Soviet Politics
- Students are required to complete three additional courses (nine credits) from Concentration List I as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

f. Western European studies

- Complete two of the following three courses (six credits):
HIST 101 Survey of European History
HIST 336 Modern European Intellectual History
INTL/POLI 352 European Governments and Politics
- Students are required to complete three additional courses (nine credits) from Concentration List J as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Native American studies minor (21 credits)

1. **Collateral requirements.** The Native American studies minor requires student participation in an approved study abroad program such as the VCU summer programs in Guatemala, Mexico and Peru. Appropriate academic credit earned through study abroad will apply toward completion of the minor. Students are required to complete Spanish through the intermediate level (201 and 202), three credits of which may be applied toward the Native American studies minor. Native speakers of a language cannot use intermediate credit in that language as part of the credits for the minor.

2. **Required courses** (six credits)

- Complete two of the following three courses:
ANTH/INTL 348 South American Ethnography
ARTH 335 Pre-Columbian Art and Architecture
HIST 109 Survey of Latin American History
- Students are required to complete three additional courses (nine credits) from Concentration List K as approved by the students' advisers. (See <http://www.has.vcu.edu/wld/academics/majors/intstudies> for list.)

Study abroad

All students who meet eligibility requirements for federal financial aid are permitted to use this assistance in approved study-abroad programs. All reasonable costs associated with study-abroad programs may be incorporated into the determination of financial aid eligibility. For more information about study-abroad programs for VCU students, contact the study abroad and student exchange coordinator in the Office of International Education, 916 W. Franklin St., (804) 828-8471.

Certificate in International Management Studies

The Certificate Program in International Management Studies is an interdisciplinary program offered by the Department of Management (School of Business) and the International Studies Program (College of Humanities and Sciences). The certificate program combines international management, foreign languages and European studies into a unique program intended to equip students for careers in international business. Students concentrating in liberal arts or business programs as well as other majors are encouraged to apply.

Certification through this program requires 33 to 36 hours of approved credits from the list of courses given below. Students may enroll in this program and take courses while enrolled in another undergraduate

program at the university, but must choose the same country track for European Studies and Foreign Language courses. For more information, contact Dr. Charles M. Byles of the Department of Management at (804) 828-7125 or cmbyles@vcu.edu; or Dr. R. McKenna Brown of the International Studies Program at (804) 827-1111 or rmbrown1@vcu.edu, or visit the program's Web site at <http://www.cim.bus.vcu.edu>.

Course requirements

European studies

credits
9

Select three courses from the following list. At least one course must be specific to one of the following country tracks: France, Germany or Spain.

EUCU 307 Aspects of German Culture
FREN 420 French Regional Culture
FREN 421 French Contemporary Culture
GEOG/INTL 334 Regional Geography of Europe
GRMN 421 The Postwar German Scene
HIST 102 Survey of European History
HIST 313 Post-War Europe, 1945 to the Present
HIST 316 History of France
HIST 318 History of Germany
HIST 323 History of Spain and Portugal
HIST 330 European Social History
POLI/INTL 352 European Governments and Politics
SPAN 420 Civilization of Spain II

Foreign languages

9

Select one of the following language tracks:

French
FREN 300 Advanced Grammar and Writing
FREN 321 French Civilization and Culture II
FREN 440 Commercial French

German
GRMN 300 Advanced Grammar and Writing
GRMN 314 Commercial German
GRMN 321 German Civilization II

Spanish
SPAN 300 Advanced Grammar and Writing
SPAN 320 Civilization of Spain I
SPAN 414 Commercial Spanish

International management

9

MGMT 319 Organizational Behavior
MGMT 329/INTL 327 Introduction to Intercultural Communication
MGMT 418/INTL 418 International Management

Experiential learning

3

The following courses are ways to apply program content to international management settings. Choose any one.

MGMT/INTL 491 Topics: The European Union (Study Abroad)
INTL 493 International Studies Internship

Approved service-learning course (SPAN 402

Language Issues in the Spanish-speaking World, FREN 300 Advanced Grammar and Writing, RELS 340/INTL 341 Global Ethics and the World's Religions or other approved courses).

Language/cultural immersion experience

0-3

Students must complete an approved Language/Cultural Immersion Experience by which they demonstrate the successful application of foreign language, cross-cultural and management skills. This demonstration can be achieved through an approved Study Abroad Program, such as MGMT/INTL 491 The European Union, an overseas internship, a service-learning course or previous life experience.

Core course in international management

3

Students must complete the following integrative course, which should be taken toward the end of the program.

MGMT/INTL 491 Topics: Doing Business in Europe

Courses in international studies (INTL)

INTL 101 Human Societies and Globalization

Semester course; 3 lecture hours. 3-4 credits. Four credits with supplementary online lectures and semester project. An interdisciplinary inquiry into sociocultural, literary, artistic, economic and political patterns both globally and in societies with varied historical experiences and divergent contemporary features. The focus of the course is comparative and thematic. It will examine institutional arrangements within societies and how these arrangements have developed, linkages between societies and their constituent organization in a world that is increasingly characterized by globalizing trends, and the implications of rapid social change for personal and collective identities and the structure of public and private relations.

INTL 102/ECON 101 Introduction to Political Economy

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies.

INTL 103/ANTH 103 Introduction to Anthropology

Semester course; 3 lecture hours. 3 credits. A general survey of anthropology with emphasis on learning about and from global cultures, and on the four fields of anthropology.

INTL 104/ANTH 105 Introduction to Archaeology

Semester course; 3 lecture hours. 3 credits. A survey of archaeological sites, methods and theories from around the world, from the earliest human cultures, to the rise and spread of civilizations, to the modern era.

INTL 105/POLI 105 International Relations

Semester course; 3 lecture hours. 3 credits. An introductory analysis of interstate relations and world

affairs. Attention focuses on theories of international politics, military capabilities and their application, international organizations, global economic trends, domestic sources of state behavior and other selected issues as appropriate.

INTL 151/MASC 151 Communications Technology and Global Society

Semester course; 1.5 lecture and 1.5 computer-assisted online discussion hours. 3 credits. A comprehensive overview of how communications technologies have shaped and are shaped by, society. Considers how digital and earlier technologies have led to increasing integration of world cultures and economies.

INTL 200/AFAM 200/ANTH 200 Introduction to African Societies

Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

INTL 203/FRLG 203 Language and Identity

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to both the cohesive and divisive dynamics that language exerts in the world today. Students explore the links connecting different peoples who share a common language as well as their language conflicts in a multilingual world. Students examine the interaction of language with identity in culture, art and nationalism through fiction and nonfiction texts, films and multimedia pertaining to a specific language area, such as: The Francophone World, post-Franco Spain, post-Cold War Germany, the Mayan World or the Swahili World. See the Schedule of Classes for areas being offered in a particular semester.

INTL 204/FRLG 204 Language and Groups in the United States

Semester course; 3-4 lecture hours. 3-4 credits. Taught in English. This course introduces students to the sociocultural experience and formation of identity of non-English-speaking peoples in the United States. Students explore the dynamic between English and a specific heritage language and its interaction with artistic, cultural and social issues through fiction and nonfiction texts, films and multimedia pertaining to specific language group, such as: Latinos, Italian-Americans, German-Americans or Native Americans. See the Schedule of Classes for areas being offered in a particular semester.

INTL 211/ENGL 211 Contemporary World Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. A study of selected literature published in the last 25 years and chosen from a number of different nations and cultures.

INTL 220/MHIS 220 Introduction to World Music

Semester course; 1 lecture hour. 1 credit. Prerequisite: MHIS 120. Study of various non-European musical cultures and musical practices in terms of larger cultural and sociological issues beyond western traditions.

INTL 303, 304/GEOG 303, 304 World Regions

Semester courses; 3 lecture hours. 3, 3 credits. An examination of the various regions of the earth, including land forms, climate, resources, peoples, agriculture and urban conditions. First semester: Anglo-America, Latin America, Western Europe, Eastern Europe, the former

USSR. Second semester: Middle East and North Africa, Africa (south of the Sahara), Indian subcontinent, China, Japan, Southeast Asia, Oceania.

INTL 305/ANTH 305 Comparative Perspectives on Cultures and Societies

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103. Examination of the theoretical, methodological and ethical problems that arise from anthropological comparisons of cultures.

INTL 307/AFAM 307/RELS 307 Black Religion

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

INTL 311, 312/RELS 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism, Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

INTL 314/BIOL 315/ENVS 314 Man and Environment

3 lecture hours. 3 credits. Not applicable to the biology major. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management and population crises; cultural traditions as mechanisms of population control; basic theory of population biology.

INTL 315/AFAM 315/ECON 315 Economic Development

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. Introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development.

INTL 317/RELS 317 Islam

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, as well as mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship.

INTL 327/MGMT 329 Introduction to Intercultural Communication

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. An introduction to the basic concepts, principles and skills for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors.

INTL 328/SOCY 328 Russian Society in Transition

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of the instructor. An analysis of Russian culture and social institutions as they are today and in historical perspective. Throughout the course interrelationships among politics, the economy and social life are examined, with particular emphasis on the ideological implications of Russian/Soviet architecture, art and mass media; on environmental issues and health; on social problems and the legal systems; and on gender, the work world and family interaction.

INTL 329/ECON 329 International Economics

3 lecture hours. 3 credits. Offered: II. Prerequisites: ECON 210-211 and junior standing. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems.

INTL 330/SOCY 330 Global Societies: Trends and Issues

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL/POLI 105 or POLI 201 or SOCY 101. An analysis of factors that are promoting the globalization of social, economic and political relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations.

INTL 331/SPAN 331 Survey of Latin American Literature

Semester courses; 3 lecture hours. 3 credits. Prerequisite: Spanish through the intermediate level or the equivalent. Conducted in Spanish. An introduction to major authors and trends up to the present.

INTL 333/AFAM 333/GEOG 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns, and cultural groupings of sub-Saharan Africa.

INTL 334/GEOG 334 Regional Geography of

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, resources, peoples, agricultural and urban conditions in a specific region such as North America, Europe, Latin America, the Middle East and India, the USSR and Eastern Europe. See the Schedule of Classes for specific region to be studied each semester.

INTL 340/GEOG 340/URSP 340 World Cities Outside of North America

Semester course; 3 lecture hours. 3 credits. An examination of urban habitats in a variety of geographical regions with emphasis on their differences and their common experiences.

INTL 341/RELS 340 Global Ethics and the World's Religions

Semester course; 3 lecture hours. 3 credits. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic.

INTL 345/FRLG 345/URSP 350 Great Cities of the World

Semester course; 3 lecture hours. 3 credits. This course may be repeated under different topics for a total of six credits. Prerequisite: Sophomore standing or permission of instructor. An interdisciplinary course with a focus on the origin, expansion and significance of one or more cities, the specifics of its/their culture and the role of language. Particular emphasis will be placed on relating the physical, social and economic aspects of the city's growth and development to the cultural expression of urbanism.

INTL 348/ANTH 348 South American

Ethnography

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. General ethnographic survey of both highland and lowland indigenous cultures of South America and cultural changes as a result of European contact. Writing intensive.

INTL 349/ANTH 349 Rethinking a Continent: Latin America

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. This course surveys contemporary cultures of Latin America. It addresses historical sociocultural developments from an anthropological perspective and introduces concepts from social justice studies, development anthropology and applied anthropology. Writing intensive.

INTL 350/ANTH 350 Rethinking a Continent: Europe

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. A survey of historical sociocultural developments from an anthropological perspective with an emphasis on integrative and disintegrative forces that have shaped cultures and identities in Europe. Introduces concepts from sociocultural anthropology, social justice studies and applied anthropology. Writing intensive.

INTL 351/POLI 351 Governments and Politics of the Middle East

Semester course; 3 lecture hours. 3 credits. A comparative analysis of political systems in the Middle East including the study of contemporary aspects in the Middle Eastern states. The courses will explore the primary bases of cleavage and conflict and the political forces that shape the policies and political dynamics of the region.

INTL 352/POLI 352 European Governments and Politics

Semester courses; 3 lecture hours. 3 credits. A comparative study of the political systems of selected western and eastern European countries.

INTL 353/POLI 353 Latin American Governments and Politics

Semester course; 3 lecture hours. 3 credits. A survey of politics characteristic of Latin American systems, including democratic reformism, military authoritarianism and revolutionary socialism. The course also examines the contemporary problems of fledgling democracies as they cope with economic and debt crises and various opposition challenges.

INTL 354/POLI 354 Russian and Post-Soviet Politics

Semester course; 3 lecture hours. 3 credits. A study of the origins, institutions, processes and disintegration of the Soviet political system, and of the ongoing reform

efforts during the post-Soviet period. Special emphasis is placed on the politics of the transition to a democratic political system and a market economy. Other topics include nationality issues, social problems and foreign policy.

INTL 355/POLI 355 Asian Government and Politics

Semester course; 3 lecture hours. 3 credits. A comparative analysis of the politics and governments of major Asian states, with a focus on Japan, China and India.

INTL 356/POLI 356/AFAM 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. This course will introduce the student to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

INTL 357/POLI 357/AFAM 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

INTL 358/POLI 358 Concepts of Comparative Government

Semester course; 3 lecture hours. 3 credits. Comparative study of politics and governments. Introduces concepts and theories used in the study of political systems. Topics include democratization and democratic governance, the role of the state, one-party and military regimes, revolution, and economic and political development.

INTL 360/RELS 350 World Classics of Spirituality

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions.

INTL 361/POLI 361 Issues in World Politics

Semester course; 3 lecture hours. 3 credits. An exploration of several significant issues in world politics. Topics may include peacekeeping and collectiveness, global environmental politics as well as selected others. Topics will vary with current events and trends in the international arena.

INTL 362/POLI 362 International Organizations and Institutions

Semester course; 3 lecture hours. 3 credits. A study of the background development structure and operations of organizations and institutions such as the United Nations, the European Community, the Organization of American States.

INTL 363/POLI 363 U.S. Foreign Policy

Semester course; 3 lecture hours. 3 credits. A analytical survey of processes and practices in the formulation of U.S. foreign policy, including an introduction to the goals, problems of implementation and current challenges faced by policy makers.

INTL 364/POLI 364 Vietnam

Semester course; 3 lecture hours. 3 credits. An analysis of the complete record of the conflict in Vietnam. The primary focus will be on the period of U.S. involvement. The course will examine closely how and

why the United States became involved in Vietnam and what impact the Vietnam War has had on political institutions and behavior. In particular, the course will examine what impact the period of U.S. involvement has had upon U.S. foreign policy. The course also will consider additional topics including: public opinion and the war, the relationship between the president and Congress in light of the war and contemporary U.S. politics as a backlash against the political movements of the 1960s.

INTL 365/POLI 365 International Political Economy

Semester course; 3 lecture hours. 3 credits. A survey of both theoretical and current policy issues in international political economy. Theories to be covered include liberalism, mercantilism, Marxism, regionalism, world systems theory and others. Policy issues include differing styles of capitalism in the industrialized world, the political economy of development, the politics of international corporate alliances and others.

INTL 366/AFAM 363/ENGL 363 African Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in 200-level literature courses (or equivalent). A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

INTL 367/AFAM 365/ENGL 365 Caribbean Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in 200-level literature courses (or equivalent). A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

INTL 368/WMNS 366/POLI 366 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

INTL 370/AFAM 350/MHIS 350 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Prerequisite: MHIS 243, MHIS/AFAM 250 or permission of instructor. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific offerings.

INTL 372/WMNS 372/RELS 372 Global Women's Spirituality

Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

INTL 378/MRBL 378 International Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 or permission of chair, and junior standing. This course is designed to orient students toward global marketing and to develop an understanding of the differences among foreign marketing environments. Subject areas emphasized are the differences and

similarities between domestic and international marketing and changes in the international marketing environment. This course also introduces students to international marketing policies.

INTL 390/FASH 390 Historic and Ethnic Textiles

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 290 or IDES 446 or permission of instructor. An examination of the history of textile design and production around the world.

INTL 391/FLET 391 Topics in Foreign Literature in English Translation

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth study of selected topics in foreign literature. (This course will not satisfy foreign language requirements. No knowledge of a foreign language is required. All work is done in English.)

INTL 398 Directed Study Abroad

Semester course; variable; 0-8 credits per semester. May be repeated for a maximum of eight credits with approval of student's major department. Permission of academic adviser required. A course involving travel and/or residence in a foreign country as features of the student's work on a pre-arranged project. Intended primarily for students participating in student exchange programs.

INTL 410/PHIL 410/RELS 410 The Chinese Tradition in Philosophy

Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

INTL 412/PHIL 412/RELS 412 Zen Buddhism

Semester course; 3 lecture hours. 3 credits. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present day Zen theory and practice in Japan and in Western countries.

INTL 413/FIRE 413 Comparative Financial Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. An analysis of the structure and functioning of financial systems in different parts of the world. Emphasis is on the evolution of such systems in relation to the U.S. financial system. Different regions of the world may be studied in different semesters.

INTL 415/ANTH 415 Economic Anthropology

Semester course; 3 lecture hours. 3 credits. Provides an overview of the anthropological approach to the "economic" in social life. Analyzes the role played by systems of reciprocity and exchange in ethnographic contexts. Concepts employed by anthropologists in the study of traditional subsistence economies are used to examine modern industrialized societies.

INTL 416/FIRE 416 International Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment.

INTL 418/MGMT 418 International Management
3 lecture hours. 3 credits. Offered: II. Prerequisite: Junior standing. Management attitudes and concepts of other nations, cultures or geographic regions compared with the United States.

INTL 419/MGMT 419 Doing Business in Europe
Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of Foreign Languages, European Studies and International Management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines.

INTL 420/AFAM 420/ANTH 420 Women of Africa
Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or AFAM 103 or permission of instructor. This course looks at the traditional roles of women in African societies and examines how women have coped in different environments. It focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and will contrast these with women's roles in large state societies of Africa and in the modern urbanized context.

INTL 421/SPAN 421 Civilization of Latin America II
Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to six credits. Prerequisite: Completion of nine credits of Spanish at the 300 level, including SPAN 320 or 321, or the equivalent (including those specifically required for certain courses). This course explores the cultural diversity of Latin America and the social and political forces behind cultural change. Topics will focus on a specific interdisciplinary theme, such as urban life, the politics of identity and on a specific area of Latin America. See the Schedule of Classes for the specific topic to be offered each semester.

INTL 425/RELS 425/ANTH 425 Religion, Magic and Witchcraft
Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society. Writing intensive.

INTL 446/MGMT 446 International Human Resource Management
Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. Covers the application of human resource management activities in an international environment. Similarities and differences in domestic methods are highlighted to aid understanding. Contemporary practices in the selection, development, compensation and maintenance of expatriates, impatriates, repatriates, host country nationals and third-country nationals are studied. Regulatory and cultural dimensions of countries are examined.

INTL 450/FREN 450 Francophone Literatures and Cultures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: FREN 300 or 301 and at least one additional French course at the 300 level or permission of instructor. Conducted in French. Introduces students to the literatures and cultures of the Francophone world. Provides an overview of the Francophone world and an in-depth study of literary works written in French from Africa, the Caribbean, North America, Asia and Europe. Also explores the impact of colonial history on Francophone literatures and cultures. See the Schedule of Classes for the specific topic to be offered each semester.

INTL 452/POLI 452 Seminar in the Politics of Developing Areas

Semester course; 3 lecture hours. 3 credits. Analysis of the processes of political and economic development. Includes a study of various challenges facing developing countries, such as economic inequalities, environmental degradation, mass political participation, military coups, revolution and civil war.

INTL 454/ENGL 454/ANTH 450 Cross-cultural Communication

Semester course. 3 lecture hours; 3 credits. A study of the dynamics of cross-cultural communication which applies linguistic tools to understanding cultural issues and solving communication problems.

INTL 455/ANTH 455 Anthropology of Development and Globalization

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL 101. May be taken for a maximum of nine credit hours in three different world areas. Consists of a global study of the developing Third World with particular emphasis on rural populations, subsistence farmers, indigenous groups and small entrepreneurs. Focuses on development and globalization while providing insights into the peasantry as a class, women in peasant societies, changes in peasant societies and the peasantry as a player in the policies of the modern state.

INTL 468/POLI 468 Seminar on Comparative Foreign Policy

Semester course; 3 lecture hours. 3 credits. Prerequisite: POLI 201 or permission of instructor. A study of theories, models and hypotheses of foreign policy behavior in various types of political systems with emphasis on empirical research and analysis of differences and similarities.

INTL 478/MRBL 478 Global Internet Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 and MRBL 378 or permission of the instructor. Course examines global Internet marketing as a necessary ingredient to successful global marketing strategy in the 21st century. Students engage in analyzing international markets — market evaluation, competitive analysis, market comparison and selection — using Web-based information and tools. Discussion includes comparison of e-business versus traditional business perspectives on marketing strategies and tactics.

INTL 490 Seminar in International Issues

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: INTL 101 or 105 and junior

or senior standing, or permission of instructor. An individualized research project focusing on international issues and undertaken in a seminar setting.

INTL 491 Topics in International Studies

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. An in-depth study of a particular topic in international studies. See the Schedule of Classes for specific topics to be offered each semester.

INTL 492 Independent Study

Semester course; variable credit, 1-3 credits with a maximum total in all independent study courses is 4 credits. Generally open to students of junior and senior standing who have acquired at least 12 credits in international studies courses. Determination of amount of credit and permission of instructor and director must be obtained before registration of the course.

INTL 493 International Studies Internship

Semester course; variable credit, 1-6 credits with a maximum of six credits. 50 clock hours in a local, national or international internship placement per credit. Prerequisites: Junior or senior standing, and approval of selection committee or program director. The internship is designed to present opportunities for qualified students to acquire exposure to internationally oriented public and private organizations and agencies. The course includes a rigorous evaluation of the internship experience based on learning objectives stipulated in a contract between the student, faculty adviser and a field supervisor.

INTL 499 Senior Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisite: completion of 15 credits at the 300 and 400 level or the equivalent. Focuses on self-assessment, compilation of a portfolio and curriculum vitae, career and graduate school preparation and on the lifelong application of skills and knowledge acquired in the program. Students will critically assess their experience in the international and area studies program.

INTL 514/NURS 514 International Perspectives on Community Health in Developing Countries

Semester course; 1 lecture and 2 laboratory hours. 3 credits. This course may be taken for a maximum of six credits in two different world areas. Open to undergraduate (junior or senior level) and graduate students. Explores the impact of national and international policy decisions on the health and well-being of individuals and communities (country varies semester to semester). Examines the relationship of cultural beliefs and values on health-seeking behaviors. Allows students to become immersed in a culture different than their own. Evaluates the impact of international conflict and economic development on the health status of the community. See Schedule of Classes for location.

INTL 591 Topics in International Studies

Semester course; 1-3 lecture hours. Variable, 1-3 credits. May be repeated for a maximum of 12 credits. Open to undergraduate (junior or senior level) and graduate students. A detailed study of selected topics in one or more geographic areas or comparative studies of global phenomena. See the Schedule of Classes for specific topic to be offered during a given semester.

Religious Studies

Mark D. Wood

Program Coordinator (1997)
B.A. 1982 California State University
M.A. 1984 California State University
Ph.D. 1994 Syracuse University

Religious studies focuses on religion as a major aspect of human culture. Students enrolled in religious studies are encouraged to think critically and systematically about religion and its role in culture, and to write clearly and cogently about it. Many students choose to major in religious studies because it provides a broad and flexible degree in the humanities, which might serve as preparation for any other vocation. Some students major in religious studies to prepare for graduate programs in universities, seminaries and professional schools, becoming clergy, chaplains and teachers of religion. Others are preparing for specialized ministries in radio, television, church-related publications, and denominational boards and agencies. An increasing demand exists for public school teachers certified to teach religious studies.

Religious studies majors are strongly encouraged to complete a minor, preferably one of the minors offered in World Studies. Students should refer to the listing in the general description of the School of World Studies.

Degree requirements – Bachelor of Arts in Religious Studies

The Bachelor of Arts curriculum in religious studies requires a minimum of 120 credits, with at least 30 of those credits in religious studies or in courses listed below as acceptable for religious studies credit.

Majors are required to take:

1. RELS 101 Introduction to Religious Studies
2. six credits from:
 - RELS 301 Introduction to the Old Testament,
 - RELS 302 Introduction to the New Testament,
 - RELS/INTL 312 Religions of the World, RELS/INTL 317 Islam, RELS 318, 319/HIST 325, 326 History of the Jewish People; RELS 334 Religion in Contemporary America
3. six credits from:
 - RELS/INTL 311 Religions of the World, RELS 320 Taoism, RELS 408/PHIL Indian Tradition, RELS/INTL/PHIL 410 The Chinese Tradition in Philosophy, RELS/INTL/PHIL 412 Zen Buddhism

4. six credits from:
 - RELS/PHIL 326 Existentialism, RELS/PSYC 333 Psychology and Religious Experience, RELS 350/INTL 360 World Classics of Spirituality, RELS/SOCY 360 Sociology of Religion, RELS/PHIL 430 Philosophy of Religion
5. three credits from:
 - RELS 490 Seminar in Religious Studies, RELS 491 Topics in Religious Studies, RELS 492 Independent Study
6. up to six credits in Hebrew, Greek, Arabic, Japanese or Chinese language courses may be accepted within the required 30 credits of the program if approved by the curriculum committee of the religious studies division; the curriculum committee may approve occasional substitutions within religious studies major requirements should the needs and background of the student warrant such substitutions

Along with the general education requirements of the College of Humanities and Sciences for the Bachelor of Arts degree, students majoring in religious studies must complete an experiential learning requirement through an approved internship, service-learning course, independent study, study-abroad program or other means as approved by the adviser.

Minor in Catholic studies

A minor in Catholic Studies consists of 18 credits including the following:

RELS 280 Introduction to Catholic Studies
RELS 380 Contemporary Catholic Thought
Two Religious Studies topic courses (RELS 491) designated "Catholic Studies"

At least two further courses from among the following:
HIST 307/RELS 308 The High Middle Ages
HIST/RELS 309 The Reformation
PHIL 430/RELS 430 Philosophy of Religion
RELS 302 Introduction to the New Testament
RELS 334 Religion in Contemporary America
RELS 492 an approved "Catholic Studies" Independent Study
SOCY 360/RELS 360 Sociology of Religion

Minor in religious studies

The minor in religious studies consists of 18 credits in religious studies, with at least nine of those credits in upper-level courses.

Minor in Judaic studies

Jack D. Spiro

Affiliate Professor of Religious Studies and Director, Judaic Studies Program (1984)
B.A. 1954 Tulane University
M.A. 1958 Hebrew Union College
Ed.D. 1979 University of Virginia

A minor in Judaic studies consists of 18 credits chosen from the following:

HIST 324 The Holocaust
HIST 325, 326/RELS 318, 319 History of the Jewish People
RELS 301 Introduction to the Old Testament
RELS 304 Introduction to Judaism
RELS 305 Hebrew Prophets
RELS 335 The American Jewish Experience
RELS 407 Modern Jewish Thought
Other courses which may be developed with approval of the director

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate major in philosophy. A full description of this program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in religious studies (RELS)

RELS 101 Introduction to Religious Studies
Semester course; 3 lecture hours. 3 credits. This course examines the phenomenon of religion and religious experience. Through a phenomenological approach definitions and descriptions of the major features of the religious experience and of religious establishments, including concepts of the sacred, the numinous, religious language, texts, symbols, rituals and myths are reviewed. In addition, the social, political and spiritual dimensions of religion in human culture will be investigated.

RELS 201 Biblical Hebrew
Continuous course; 3 lecture hours. 3 credits. Fall semester. Vocabulary, elementary grammar, introduction to lexica and reading of biblical texts.

RELS 202 Biblical Hebrew
Continuous course; 3 lecture hours. 3 credits. Spring semester. Prerequisite: RELS 201. Vocabulary, elementary grammar, introduction to lexica and reading of biblical texts.

RELS 250 Death: Myth and Reality
Semester course; 3 lecture hours. 3 credits. A study of intellectual and emotional responses to death and dying with emphasis upon their role in the development of religious thought and practice. Special attention will be paid to the death theme in literature, funeral practices and beliefs concerning the afterlife in selected world religions.

RELS 280 Introduction to Catholic Studies

Semester course; 3 lecture hours; 3 credits. This course provides an introduction to Catholicism's major doctrines, figures, historical events, philosophy and ethics from its beginnings in the first centuries of the Common Era through contemporary debates over such issues as abortion, sexuality and war. Students will learn about scripture, doctrine, theology, the sacraments, art and architectures, saints, social justice and gender, and the history and role of the Church.

RELS 291 Topics in Religious Studies

Semester course; variable credit. 1-3 credits. Prerequisite: As specified by the Schedule of Classes. May be repeated with different topics for a maximum of six credits. Focused study of selected ideas, institutions, movements, time periods and/or thinkers. See Schedule of Classes for specific topic to be offered each semester.

RELS 301 Introduction to the Old Testament

Semester course; 3 lecture hours. 3 credits. A survey of the Old Testament from its beginning through the post-Exile period. Emphasis given to the literary and historical development of the text.

RELS 302 Introduction to the New Testament

Semester course; 3 lecture hours. 3 credits. A survey of the New Testament with particular emphasis given to the historical development of the Canon.

RELS 303 Intertestamental Literature and Thought

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 301 or 302. The period between the Old and New Testaments as seen through the literature of the era, with emphasis on the writings of the Apocrypha, Pseudepigrapha and Josephus.

RELS 304 Introduction to Judaism

Semester course; 3 lecture hours. 3 credits. A general survey of the dynamics and characteristic patterns of Jewish civilization encompassing history, practices and beliefs.

RELS 305 Hebrew Prophets

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 301. A survey of the literature and history of Israel as seen through the work of the writing prophets. Emphasis will be placed on the second part of the Hebrew Canon and the Book of Daniel.

RELS 307/AFAM 307/INTL 307 Black Religion

Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

RELS 308/HIST 307 The High Middle Ages

Semester course; 3 lecture hours. 3 credits. A detailed historical analysis of the Gregorian Revolution, the Crusades, the 12th-century Renaissance, the Thomistic World and the death of medieval civilization.

RELS 309/HIST 309 The Reformation

Semester course; 3 lecture hours. 3 credits. A careful and intensive inquiry into the spiritual and material forces and people involved in the reformation of Christendom in 16th-century Europe.

RELS 311, 312/INTL 311, 312 Religions of the World

Semester course; 3 lecture hours. 3, 3 credits. An investigation of the historical, cultural and theological foundations and development of major world religions. First semester: Hinduism, Buddhism, Confucianism,

Taoism and Shinto. Second semester: Zoroastrianism, Judaism, Christianity and Islam.

RELS 313 Life and Literature of Paul

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 302. A survey of the life and literature of Paul as given in Acts and the Epistles, involving special consideration of Paul's contribution to the expansion of Christianity.

RELS 314 Jesus in the New Testament Tradition

Semester course; 3 lecture hours. 3 credits. A study of the Christ of faith and the Jesus of history as presented in New Testament literature and as interpreted in the works of selected scholars from the Church fathers to the present.

RELS 315, 316/HIST 301, 302 The Ancient Near East

Semester course; 3 lecture hours. 3, 3 credits. A study of the ancient Near Eastern civilizations of Mesopotamia, Egypt, Anatolia and Syria-Palestine, from the preliterary period to that of the Archaemenid Empire of the Persians. First semester: preliterary period to the end of Kassite rule in Babylonia (c.-1160 B.C.). Second semester: the rise and fall of the great Neo-Assyrian, Neo-Babylonian, Hebrew and Persian Empires (c.-311 B.C.).

RELS 317/INTL 317 Islam

Semester course; 3 lecture hours. 3 credits. A study of the emergence of Islam in Arabia in the seventh century and its subsequent developments, including a look at the Qur'an (the holy book), the Prophetic traditions, the concept of God, and mysticism (sufism) and law (shari'ah) and an overview of ritual practices, fundamental beliefs, theological principles and current issues in Islam and international relationship.

RELS 318, 319/HIST 325, 326 History of the Jewish People

Semester courses; 3 lecture hours. 3, 3 credits. A study of the Jewish people from the destruction of the Second Temple in A.D. 70 to the present. First semester: Judea in Roman times, the Diaspora in Islam and in Europe, social and cultural trends and the impact of the Emancipation. Second semester: the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel and the relations of Israel and World Jewry.

RELS 320 Taoism

Semester course; 3 lecture hours. 3 credits. A study of one of the most fundamental and influential philosophies of life in Chinese culture, focusing on the theory and practice of the basic principles of Taoism as formulated by the legendary Lao Tzu and further developed by Chuang Tzu.

RELS 322 Tibetan Buddhism

Semester course; 3 lecture hours; 3 credits. A basic introduction to the history, development and mythology of the Buddhism of Tibet focusing on the Indian heritage and shared basis of all Buddhist practices, a clear identification of the three vehicles found in Buddhism, and a careful consideration of the path of the Bodhisattva, the hero of Great Vehicle Buddhism.

RELS 326/PHIL 326 Existentialism

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in philosophy (exclusive of logic) or permission of instructor. An examination of the nature

of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel.

RELS 327/HIST 327 History of Christianity

Semester course; 3 lecture hours. 3 credits. An historical and theological examination of Christianity from its origin to the present. Emphasis will be upon an understanding of leading events, ideas, movements and persons in their historical settings.

RELS 333/PSYC 333 Psychology and Religious Experience

Semester course; 3 lecture hours. 3 credits. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality factors and development, conversion experiences, religious experiences and mental health and human values.

RELS 334 Religion in Contemporary America

Semester course; 3 lecture hours. 3 credits. This course studies the history, literature, belief patterns and unique traits of religion in the United States. The evolution of religion and religious sentiment in a modern pluralistic, democratic society, including the varieties of religious experiences in contemporary America will be reviewed.

RELS 335 The American Jewish Experience

Semester course; 3 lecture hours. 3 credits. The religious, social and cultural structure of American Jewry from the colonial era to the present. Central themes examined are the social and religious characteristics of the American Jewish community, the tension between traditional Jewish values and the demands of the American environment, imported versus indigenous ideologies, regional and denominational variations.

RELS 340/INTL 341 Global Ethics and the World's Religions

Semester course; 3 lecture hours. 3 credits. A critical survey of ethical concepts and issues in the thought and practice of major religious traditions. Comparison of ethical perspectives on selected themes and attention to cooperative efforts toward a global ethic.

RELS 342 Buddhist Reasoning and Debate

Semester course; 4 lecture hours; 4 credits. A basic introduction to perception, logic and epistemology in Buddhist thought. The course is designed to convey basic reasoning skills including formation of arguments, checking arguments for validity, and developing techniques and strategies for rational discourse.

RELS 350/INTL 360 World Classics of Spirituality

Semester course; 3 lecture hours. 3 credits. A critical reading of selected works from among the spiritual classics of Judaism, Christianity, Islam, Hinduism, Taoism and other religious traditions.

RELS 360/SOCY 360 Sociology of Religion

Semester course; 3 lecture hours. 3 credits. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population.

RELS 361/ENGL 361 The Bible as Literature

Semester course; 3 lecture hours. 3 credits. Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible.

RELS 362 Shakespeare and Religion

Semester course; 3 lecture hours. 3 credits. An examination of the religious ideas in selected plays by William Shakespeare and their relevance to contemporary religious thought and experience. Topics include the nature of God, the meaning of life, the problem of evil, moral authority and the question of immortality as found in Shakespeare's plays.

RELS 368 Asian Religions and Asian Medicine

Semester course; 3 lecture hours; 3 credits. An introductory survey of three medical systems indigenous to Asia, including study of how these medical systems are linked in theory and practice to religions and spiritual systems. These three are Indian Ayurveda in light of Hinduism, Chinese herbal medicine and acupuncture in light of Daoism, and Tibetan medicine in light of Tibetan Buddhism.

RELS 371/WMNS 371 Islam and Women

Semester course; 3 lecture hours. 3 credits. Prerequisites: RELS 317, 312 or knowledge of Islam. Critical study of the roles and rights of women in Islam.

RELS 372/WMNS 372/INTL 372 Global Women's Spirituality

Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

RELS 380 Contemporary Catholic Thought

Semester course; 3 lecture hours; 3 credits. A study of the contemporary Catholic Christian response to the questions, "Who is God?" and "Where/how do we experience the Sacred?" Methods of Catholic theology will be explicated and applied to the teachings of the Second Vatican Council and current responses to those teachings in such areas as sacramental worship and liturgy, and moral/ethical teachings of the Church.

RELS 401/LFSC 401 Faith and Life Sciences

Semester course; 3 lecture hours. 3 credits. Prerequisites: Sophomore standing and ENGL 200. Open to students of any school or program. Explores the complex relationships between faith traditions and the life sciences. Topics include epistemology, impact of life sciences on ideas of fate and responsibility, limits of science and technology, and scientific and religious perspectives on human origins, consciousness, aggression, forgiveness, health, illness and death.

RELS 407 Modern Jewish Thought

Semester course; 3 lecture hours. 3 credits. A study of the writings of the leading Jewish thinkers of the 19th and 20th centuries. Special reference will be made to the issues arising from the encounter of Judaism with the modern world: the nature of revelation and the authority of the Torah, the nature of God, the impact of the Holocaust, the meaning of redemption and the significance of the state of Israel.

RELS 408/PHIL 408 Indian Tradition

Semester course; 3 lecture hours. 3 credits. Prerequisites: At least six credits from philosophy or religious studies courses. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary developments.

RELS 410/PHIL 410/INTL 410 The Chinese**Tradition in Philosophy**

Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

RELS 412/PHIL 412/INTL 412 Zen Buddhism

Semester course; 3 lecture hours. 3 credits. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present day Zen theory and practice in Japan and in Western countries.

RELS 425/ANTH 425/INTL 425 Religion, Magic and Witchcraft

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 103 and a "C" or better in ENGL 200. A survey of the nature and variety of beliefs outside of the major streams of religious thought. Among topics considered are myth, totemism, taboo and sorcery. Emphasis on understanding supernatural beliefs and practices in relation to culture and society. Writing intensive.

RELS 430/PHIL 430 Philosophy of Religion

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in philosophy (exclusive of PHIL 211 and PHIL 212) or permission of instructor. An introduction to the major problems and questions of religion and reason. Special reference will be made to the nature of God, the nature of man, the problem of evil, the source of good, immortality and the basis of authority.

RELS 440/PHIL 440 Mysticism

Semester course; 3 lecture hours. 3 credits. Prerequisite: One course in philosophy or religious studies. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic.

RELS 490 Seminar in Religious Studies

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Prerequisites: 12 credits in religious studies courses. Research methods and bibliography in the field of religious studies; application of techniques and resources on research topics with the classroom guidance and critique.

RELS 491 Topics in Religious Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Prerequisite: Written permission of instructor. An in-depth study of selected ideas or concepts, religious thinkers or significant movements in the field of religion. See the Schedule of Classes for specific topic to be offered each semester.

RELS 492 Independent Study

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent study course to allow interested students in religious studies to do research in an area of major interest under the direction of a professor qualified in that field.

African American Studies Program**M. Njeri Jackson**

Director and Associate Professor of Political Science and Public Administration and African American Studies (1990)

B.A. 1976 Georgia State University

M.A. 1982 Atlanta University

Ph.D. 1987 Atlanta University

The Bachelor of Arts in African American Studies gives students the opportunity to pursue a liberal education consistent with their intellectual interests and career goals. This program prepares students for graduate studies in African American studies and other fields. African American studies majors interested in teaching careers in early education or special education can enroll in the Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in African American studies and a master's degree in teaching. African American studies majors interested in teaching careers at the middle school level also can enroll in the Extended Teacher Preparation Program provided they have fulfilled the requirements of a minor in any of the sciences, mathematics, English, history or political science. Eligibility to teach at the secondary level requires African American studies majors to complete a second liberal arts major in the subject they plan to teach.

Degree requirements – Bachelor of Arts in African American Studies

Students majoring in African American studies must meet the general education requirements of the College of Humanities and Sciences.

The Bachelor of Arts with a major in African American studies requires the completion of 120 credits with at least 36 credits in African American studies courses. The 36 credits in African American studies must include AFAM 103, AFAM 208, AFAM 308, AFAM 408 and AFAM 416. At least 21 of the 36 credits in African American studies must be in upper division courses. Students are required to take at least one approved course pertinent to each of the following geographical regions: (1) Africa, (2) North America and (3) Latin America or the Caribbean. Students also are required to establish a concentration by taking a minimum of four courses in a single cooperating department. A cooperating

department or program is defined as one that regularly offers at least one cross-listed course per year, which includes: Anthropology, Dance, English, Geography, History, Music, Philosophy, Religious Studies, Political Science and Public Administration, Psychology, Sociology, Theatre and Women's Studies (Bachelor of Interdisciplinary Studies with a major concentration in Women's Studies.) When courses not cross-listed with African American Studies are used to meet the concentration requirement, they must be selected in consultation with the African American Studies adviser.

Minor in African American Studies

The minor in African American studies requires a minimum of 18 credits. Students must complete AFAM 103 Introduction to African American Studies, and at least one course dealing with Africa, African Americans, and Africa and African-American arts. Courses in African American studies are designed to help students gain a knowledge and appreciation of the history and culture of Africans and African Americans and their contributions to world civilizations.

Courses in African American studies (AFAM)

AFAM 103 Introduction to African-American Studies
Semester course; 3 lecture hours. 3 credits. Using an interdisciplinary approach, this course will familiarize students with important events, developments, personalities and other phenomena that help facilitate the study and understanding of African Americans from their African past to their present existence.

AFAM 104/SOCY 104 Sociology of Racism
Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation and as a form of human conflict. The central focus of interest will be on black-white relationships.

AFAM 105, 106/HIST 105, 106 Survey of African History
Semester courses; 3 lecture hours. 3, 3 credits. A survey of African civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: To 1800. Second semester: 1800 to the present.

AFAM 121, 122/DANC 121, 122 Tap Technique I
Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

AFAM 126, 127/DANC 126, 127 African-Caribbean Dance I
Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

AFAM 151, 152/DANC 151, 152 Jazz Dance Technique I
Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

AFAM 200/ANTH 200/INTL 200 Introduction to African Societies
Semester course; 3 lecture hours. 3 credits. This course introduces the student to the African continent, its peoples and cultures. It covers such general characteristics as the physical and geographical features, climate, topography, traditional economies, languages, religions, social systems and other cultural features that are traditional to its people.

AFAM 204 Africa in Transition
Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 200 or permission of instructor. The impact of modern social change upon the traditional aspects of African life. Various aspects of social change as it applies to Africa today will be explored.

AFAM 206/SOCY 206/WMNS 206 African American Family Relationships
Semester course; 3 lecture hours. 3 credits. Focuses on the African American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

AFAM 208 African-American Social Thought
Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 103. This course exposes students to the rich chronicle of the experiences and views of Africans in the United States that has been preserved in the writings of scholars, activists and creative artists. The course introduces students to this body of thought selecting a number of social critics and creative writers whose texts address persistent themes that have shaped African-American life.

AFAM 250/MHIS 250 Introduction to African-American Music
Semester course; 3 lecture hours. 3 credits. An introductory survey of black involvement with the development of music in America from 1607 to the present. African-American musical styles will be studied from many aspects including their African roots and contemporary popular expression.

AFAM 302/POLI 302 Politics of the Civil Rights Movement
Semester course; 3 lecture hours. 3 credits. The main objectives of the course are to introduce and examine the personalities and activities of the modern Civil Rights Movement. The course provides the historical background leading up to the peak years of the struggle for racial equality in America. It has special focus on the

events of the 1960s and, particularly their implication for the current state of U.S. Civil Rights.

AFAM 303/THEA 303 Black Theatre
Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black-theatre dramaturgy.

AFAM 305/SOCY 305/WMNS 305 African American Family in Social Context
Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

AFAM 307/RELS 307/INTL 307 Black Religion
Semester course; 3 lecture hours. 3 credits. An analysis of the role of religion in the lives of blacks with an emphasis on African religions and philosophies, the black church in America, and the roles of the various faiths, sects and cults.

AFAM 308 Modes of Inquiry in African-American Studies
Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 208. This course introduces students to the interdisciplinary processes whereby those working in the field develop their arguments and interpretations concerning the black experience. Students will develop increased skills in library research and an awareness of the importance of such methodologies as archaeology, oral history, case studies, participant observations, experiments and surveys. Student will be introduced to the need for critical analysis, the role of biases and frames of references and the reason why scholars working in the field often reach different conclusions with reference to issues of fact, interpretation and significance.

AFAM 314/ENGL 314 African-American Literature
Semester course; 3 lecture hours. 3 credits. An examination of the culture and literature of African Americans from their roots in Africa and the African Diaspora to the present day. Authors may include Wheatley, Jacobs, Wilson, Brown, Dubois, Hurston, Wright, Gaines and Morrison.

AFAM 315/ECON 315/INTL 315 Economic Development
Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211. An introduction to the process of economic development including a survey of development theory and a study of the experience of both underdeveloped and developed countries. Economic policies and tools of economic planning for stimulating development will be presented.

AFAM 318/POLI 318/WMNS 318 Politics of Race, Class and Gender
Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

AFAM 322/PSYC 322 Personality and Behavior of the African American

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study of personality factors, such as motivation, ego functioning, and the socialization processes with special emphasis on living conditions of African Americans.

AFAM 333/GEOG 333/INTL 333 Geography of Africa

Semester course; 3 lecture hours. 3 credits. A study of the land forms, climate, peoples, livelihoods, settlement patterns, and cultural groupings of sub-Saharan Africa.

AFAM 342/ANTH 342 African-American Art

Semester course; 3 lecture hours. 3 credits. Prerequisite: Advanced standing. A study of the art forms produced by Americans of African origin from the 17th-century to the present with an emphasis on contemporary trends in black art.

AFAM 343/POLI 343 Black Political Thought

Semester course; 3 lecture hours. 3 credits. An historical and sociological perspective on the political and social ideas of black thinkers from David Walker to the present.

AFAM 345/POLI 345 African-American Politics

Semester course; 3 lecture hours. 3 credits. In this course, students will discuss and analyze the dynamics of the black experience in the American political system. The status of African Americans in the United States and the struggle for racial equality will be examined, as will the manner in which American institutions have responded to these phenomena. Students will examine the race/class metric in African-American politics, particularly policies of Affirmative Action as a black progress strategy.

AFAM 350/MHIS 350/INTL 370 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions.

AFAM 356/POLI 356/INTL 356 Government and Politics of Africa

Semester course; 3 lecture hours. 3 credits. Introduces students to the basic outlines of government and politics in Africa. The course will consider such topics as colonialism, elitism and nationalism and modernization strategies. Using the comparative approach, the course will primarily focus on West, East and Central Africa.

AFAM 357/POLI 357/INTL 357 Politics of Southern Africa

Semester course; 3 lecture hours. 3 credits. An examination of racial and political developments in the southern tip of Africa. While South Africa will be the primary focus of analysis, other countries in the region such as Zimbabwe, Angola and Mozambique will be studied.

AFAM 358/ANTH 358 African Art and Architecture

Semester course; 3 lecture hours. 3 credits. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art.

AFAM 361, 362/HIST 361, 362 Americans from Africa

Semester courses; 3 lecture hours. 3, 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

AFAM 363/ENGL 363/INTL 366 African Literature

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in 200-level literature courses (or equivalent). A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

AFAM 365/ENGL 365/INTL 367 Caribbean Literature

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 101-200. A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

AFAM 387/HIST 387 History of West Africa

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to the present, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic slave trade and its effects, colonialism, African resistance and nationalism, and developments since independence.

AFAM 388/HIST 388 Africa: Social, Cultural and Economic History

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the nineteenth century to the present. Emphasis is placed on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution and Africa in world affairs.

AFAM 389/HIST 389 History of Southern Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa.

AFAM 390/HIST 390/WMNS 390 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. An examination of various aspects of slavery in Africa primarily, and selected parts of the African Diaspora including the United States, Canada and the Caribbean, with emphasis on African conditions of servility, the Atlantic slave trade and chattel slavery. The role gender and race played in slavery will be given particular attention.

AFAM 392/HIST 392 The Caribbean to 1838

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition.

AFAM 393/HIST 393 Akhenaten to Cleopatra

Semester course; 3 lecture hours. 3 credits. A survey of Egyptian history from the period of the Empire (New Kingdom, c. 1570 B.C.) through the Ptolemaic Age of Cleopatra (c. 30 B.C.). Particular areas of concentration will include the Amarna Period of Akhenaten and various aspects of Egyptian daily life.

AFAM 401/SOCY 401 African-Americans and the U.S. Health Care System

Semester course; 3 lecture hours. 3 credits. Prerequisites: AFAM 103, AFAM 305 or permission of the instructor. Explores issues surrounding the disparity in health status and health outcomes between African Americans and other groups in the United States. Students are required to participate in an experiential exercise designed to enhance learning.

AFAM 408 Seminar in African-American Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: AFAM 308, AFAM 416. Generally open only to students of senior standing who have completed 24 credits of African American studies. Involves the planning and execution of a major research project demonstrating the interdisciplinary processes through which those working in the field of African-American studies use diverse sources to develop their arguments and interpretations.

AFAM 413/ARTH 350 African and Oceanic Art

Semester course; 3 lecture hours. 3 credits. A study of the architecture, painting, sculpture and civilizations of the major art-producing tribes of West Africa and Oceania from the 13th century to the present.

AFAM 416/ANTH 416 The Origin and Evolution of the Idea of Race

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or AFAM 103 or permission of instructor. Explores the origins and social history of the "idea" of race from the Middle Ages to the end of the 20th century. Using both historical and anthropological scholarship, the course presents an analytical framework for race as a sociocultural phenomenon.

AFAM 420/ANTH 420/INTL 420 Women of Africa

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103 or AFAM 103 or permission of instructor. Looks at the traditional roles of women in African Societies and examines how women have coped in different environments. Focuses on the institutionalized aspects of similarities and differences in women's lives in pastoral and horticultural societies and those with mixed economies, and contrasts these with women's roles in large state societies of Africa and in the modern urbanized context.

AFAM 440/ANTH 440 Contemporary Art and Architecture of Africa

Semester course; 3 lecture hours. 3 credits. A study of the impact on African art and architecture of colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists.

AFAM 491 Topics in African-American Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of nine credits; three credits may be applied to the African American studies minor. An in-depth study of specialized areas of African-American studies.

AFAM 492 Independent Study

Semester course; variable credit. Maximum four credits per semester. Maximum total of four credits in all independent study courses. Generally open only to students of junior and senior standing who have acquired at least 12 credits in African American studies courses. Determination of the amount of credit and permission of the instructor and coordinator must be procured prior to registration for the course.

Minor in American Studies Program

Richard A. Fine

Professor and Coordinator, American Studies (1979)
 A.B. 1973 Brown University
 M.A. 1975 University of Pennsylvania
 Ph.D. 1979 University of Pennsylvania

Offered jointly by the departments of English and History, the minor in American studies consists of at least 18 upper-level credits to be distributed as follows: six credits in American studies (AMST) courses; three credits in humanities electives; three credits in social science electives; and six credits in either humanities, social science or other approved electives, or in independent study. All courses selected to fulfill distribution areas must deal with American materials and topics. A list of recommended courses and electives is available from the coordinator.

Courses in American studies (AMST)

AMST 195 Richmond

15 contact hours. 1 credit. A series of mini-courses dealing with aspects of Richmond's literary and historical importance from the city's beginning to the present.

AMST 391 Topics in American Studies

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Selected issues or problems in American civilization with materials drawn from such areas as history, the social sciences, philosophy, literature, the arts and mass communications.

AMST 394 Perspectives in American Studies

Semester course; 3 lecture hours. 3 credits. Prerequisites: Six credits in American related courses. An introduction to the methods, significant works, and major trends in American studies. May be taken for American literature credit by English majors. May not be used to satisfy the College of Humanities and Sciences requirements in literature.

Bachelor of Interdisciplinary Studies (B.I.S.)

Deborah Hobson

Coordinator (2000)
 B.A. 1989 State University of New York, Oswego
 M.Ed. 1997 George Mason University

The Bachelor of Interdisciplinary Studies provides opportunities for students to combine disciplines in unique ways. Students can apply for a nontraditional, individualized and interdisciplinary course of study by designing their own curriculum. Or students can apply for a prescribed interdisciplinary specialization in women's studies.

The individualized program is for students who have clearly articulated goals that cannot be met by existing university programs. Through faculty advising, this program helps students define their educational goals and design their interdisciplinary curricula by drawing on a variety of course offerings. Each student must define a specific focus area that combines two or more areas of study.

The Women's Studies program is for students who want to pursue an interdisciplinary liberal arts education with a specialized focus on the study of women. Women's studies provides a useful background for many careers and professions where a greater knowledge of women is an asset.

To earn a B.I.S. degree, students must complete at least 120 credits (45 of these credits must be upper level) with at least a 2.0 cumulative GPA.

Individualized program requirements

General education

credits
 35 to 43

1. Communicating

12 to 15

Six hours composition and rhetoric (e.g., ENGL 101, 200 by course (for individualized program only) or placement credit with a minimum grade of "C" in each course or demonstrated competence). Two Writing Intensive courses, one of which preferably is in the focus area. Three hours in speech or communications (e.g., SPCH 121 or 321; SLWK 230; PSYC 323, 340, 341; RPSM 195) or transfer credit, which includes a course emphasizing oral communication.

2. Ethics 3
 Completion of an ethics course (e.g., PHIL 211, 212, 213, MASC 290, RELS 340, SOCY 445 or POLI 341) or transfer credit, which includes a course emphasizing ethics.

3. Quantity and form 6
 Must include college algebra or its equivalent (e.g., MATH 131) plus an additional course from mathematics, logic, computer science or statistics.

4. Science and technology 3 to 4
 Completion of a course in science that includes a laboratory experience.

5. Visual and performing arts 2 to 3
 Completion of a course that includes a participatory component or explores the historical, cultural, aesthetic and creative development of the arts.

6. Humanities and social sciences and interdependence 9 to 12
 Completion of three courses to be distributed as follows: three hours in humanities (e.g., literature, religious studies, history, philosophy); three hours in American, European or non-Western culture; three hours in social sciences (e.g., psychology, sociology, social sciences, economics, political science, African American studies, anthropology, geography, women's studies, social work). One of the three courses must have an international or global emphasis.

Focus area

The individually designed interdisciplinary focus area requires a minimum of 36 semester hours, 24 of which must be upper-level credit.

Electives

Maximum of 52 credits

Other requirements

For degree completion, at least 25 percent of semester-hour credits must be earned through instruction at VCU. The last 30 hours of credit must be taken at VCU or 15 credits may be taken at VCU and 15 from other approved institutions in the area when there is no equivalent VCU course. At least 24 hours must be taken after acceptance into the program, 12 of which must be in the focus area. Twenty-one of the junior- or senior-level credits must be from VCU. No more than 60 semester credits may be from a two-year college. B.I.S. students may count no more than 30 credits of business courses, including transfer courses, and no more than four transfer credits of physical education activity courses.

B.I.S. majors are required to participate in departmental assessment activities (i.e., graduation portfolio, focus groups, exit survey). Assessment information is used to assist faculty in evaluating program effectiveness.

To enter the nontraditional program, students must complete a supplemental application and the following:

1. attend one orientation session (call to schedule an appointment),

2. have a goal that cannot be met by another degree program at VCU,
3. have a minimum of 30 semester hours of college credit and
4. have a minimum GPA of 2.0

Students have a variety of credit options, including CLEP examinations, credit for formal military training and credits for certain professional certifications when they do not duplicate college course work.

Women's Studies program

Diana H. Scully

Professor of Sociology and Anthropology and Women's Studies and Program Director (1976)
B.A. 1970 University of Illinois-Chicago
M.A. 1972 University of Illinois-Chicago
Ph.D. 1977 University of Illinois-Chicago

The Women's Studies track requires a total of 120 credits with a minimum of 30 credits in women's studies courses and at least 15 of these credits in upper-level courses. Students must take three required core courses and at least one different course from each of the three lists below. In addition, students must complete the general education requirements for the Bachelor of Arts in the College of Humanities and Sciences. Refer to the "General Education" section of the "College of Humanities and Sciences" chapter of this bulletin.

The following list demonstrates how the women's studies credits should be distributed.

Core program courses

WMNS 201 Introduction to Women's Studies
WMNS 301 Feminist Social Theory or WMNS/ENGL 352 Feminist Literary Theory
WMNS 401 Topical Senior Seminar

Diversity – at least three credits from approved diversity courses cross-listed with Women's Studies chosen from the following:

WMNS/SOCY/AFAM 206 African American Family Relationships
WMNS/SOCY/AFAM 305 African American Family in Social Context
WMNS/POLI/AFAM 318 Politics of Race, Class and Gender
WMNS/POLI 366/INTL 368 Women and Global Politics
WMNS/RELS 371 Islam and Women
WMNS/INTL/RELS 372 Global Women's Spirituality
WMNS 380 Lesbian and Bisexual Women
WMNS/ENGL 384 Women Writers (when the topic is African American or African women writers; may be repeated once with a different topic)

WMNS/AFAM/HIST 390 Africa and the Americas: Slavery, Gender and Race

Humanities – at least three credits from approved humanities courses cross-listed with Women's Studies chosen from the following:

WMNS/ENGL 236 Women in Literature
WMNS/HIST 339, 340 History of Women in Europe
WMNS/HIST 341 American Women's History
WMNS/RELS 371 Islam and Women
WMNS/INTL/RELS 372 Global Women's Spirituality
WMNS/ENGL 384 Women Writers (may be repeated once with a different topic)
WMNS/AFAM/HIST 390 Africa and the Americas: Slavery, Gender and Race
WMNS/ENGL/LING 452 Language and Gender
WMNS/ARTH 457 Women, Art and Society
WMNS 491/ENGL 409 Medieval Studies (when the topic is women)
WMNS 491/ENGL 410 Renaissance Studies (when the topic is women)
WMNS 491/ENGL 411 18th-century British Studies (when the topic is women)
WMNS 491/FREN 450/INTL 450 Francophone Writers (when the topic is women)
WMNS 491/ENGL 491 Topics in Literature (when the topic is women)

Social science – at least three credits from approved social science courses cross-listed with Women's Studies chosen from the following:

WMNS/SOCY/AFAM 206 African American Family Relationships
WMNS/SOCY/ANTH 304 The Family
WMNS/SOCY/AFAM 305 African American Family in Social Context
WMNS/POLI 316 Women and the Law
WMNS/POLI/AFAM 318 Politics of Race, Class and Gender
WMNS/POLI 319 Women and American Politics
WMNS/SOCY 333 Sociology of Sex and Gender
WMNS/SOCY 334 Sociology of Women
WMNS/PSYC 335 Psychology of Women
WMNS/POLI 366/INTL 368 Women and Global Politics
WMNS 380 Lesbian and Bisexual Women
WMNS/CRJS 382 Women in the Justice System

Electives

Remainder of credits are electives but must be Women's Studies courses or cross-listed courses. Electives may include WMNS 291, 391 or 491 Special Topics, and WMNS 492 Independent Study.

Minor in women's studies

Women's studies is the interdisciplinary, cross-cultural examination of women's perspectives and experiences.

The minor in women's studies shall consist of 18 credits. Students are required to take the following: (1) WMNS 201 Introduction

to Women's Studies, (2) a feminist theory course and (3) a course addressing racial/cultural diversity. The remainder of courses are electives.

Courses in women's studies (WMNS)

WMNS 201 Introduction to Women's Studies

Semester course; 3 lecture hours. 3 credits. An interdisciplinary and cross-cultural introduction to the perspectives and core concerns of women's studies.

WMNS 206/AFAM 206/SOCY 206 African American Family Relationships

Semester course; 3 lecture hours. 3 credits. Focuses on the African American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

WMNS 236/ENGL 236 Women in Literature

Semester course; 3 lecture hours. 3 credits. An introduction to literature by and/or about women.

WMNS 291 Topics in Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a total of six credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

WMNS 301 Feminist Social Theory

Semester course; 3 lecture hours. 3 credits. This course examines the major theoretical traditions and thinkers of feminist theory from the works of early liberal feminists like Wollstonecraft to the present thought of postmodern and lesbian feminists like Wittig. It examines arguments about human nature, the origins and effects of patriarchy, the conflict between equality and gender difference and feminist critiques of traditional theories of knowledge.

WMNS 304/ANTH 304/SOCY 304 The Family

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or ANTH 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

WMNS 305/AFAM 305/SOCY 305 African American Family in Social Context

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

WMNS 316/POLI 316 Women and the Law

Semester course; 3 lecture hours. 3 credits. Introduces students to the history, politics and status of women

under the American legal system. Topics to be covered may include equal protection, sexual violence, the particular rights of women of color and lesbians, reproductive rights of women of color and lesbians, reproductive rights, women criminals and women in the legal profession.

WMNS 318/AFAM 318/POLI 318 Politics of Race, Class and Gender

Semester course; 3 lecture hours. 3 credits. A study of the racial, class and gender influences on the history and development of political values, conflicts, processes, structures and public policy in the United States.

WMNS 319/POLI 319 Women and American Politics

Semester course; 3 lecture hours. 3 credits. This course analyzes the participation of women in American politics. Attention is given to both women's historical and contemporary roles in politics, their participation as voters and citizens, and their behavior as candidates and office holders. Additional topics may include workplace, family and education issues and reproductive rights.

WMNS 333/SOCY 333 Sociology of Sex and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of instructor. A cross-cultural and evolutionary exploration of the interdependence between male and female roles in the following social institutions: family, law, economics, politics, religion, education and health.

WMNS 334/SOCY 334 Sociology of Women

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized.

WMNS 335/PSYC 335 Psychology of Women

Semester course; 3 lecture hours. 3 credits. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse.

WMNS 339, 340/HIST 339, 340 History of Women in Europe

Semester courses; 3 lecture hours. 3, 3 credits. A history of European women from the Greeks to the contemporary world. A major focus of both courses will be primary sources by and about women. First semester: antiquity to the Enlightenment. Second semester: French Revolution to the present.

WMNS 341/HIST 341 American Women's History

Semester course; 3 lecture hours. 3 credits. Through reading, lecture and discussion, this course analyzes historical changes in the social, cultural, political and economic position of women in America over the past three centuries. It includes such topics as the differences and similarities of women's experiences across lines of class, race and ethnicity, the struggle for suffrage and social reform, shifting gender roles and changing employment opportunities.

WMNS 352/ENGL 352 Feminist Literary Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in 200-level literature courses or equivalent. The study of contemporary feminist

thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the last 30 years and examines applications of feminist theory to specific works of literature.

WMNS 366/POLI 366/INTL 368 Women and Global Politics

Semester course; 3 lecture hours. 3 credits. A study of women and global politics, providing both a feminist re-examination of traditional international-relations theories and a comparative analysis of the political, legal and economic status of the world's women. The impact of women on global political institutions such as the United Nations will be addressed as well as other feminist and grass roots means of taking political action.

WMNS 371/RELS 371 Islam and Women

Semester course; 3 lecture hours. 3 credits. Prerequisite: RELS 317, 312 or knowledge of Islam. Critical study of the roles and rights of women in Islam.

WMNS 372/RELS 372/INTL 372 Global Women's Spirituality

Semester course; 3 lecture hours. 3 credits. Explores the spiritual writings of women in various cultures and religious traditions.

WMNS 380 Lesbian and Bisexual Women

Semester course; 3 lecture hours. 3 credits. This course examines the lives of contemporary lesbian and bisexual women from psychological, sociological, developmental, political and cultural perspectives. The intersection of race, class, ethnicity, religion, age, disability and locale with lesbian/bisexual identity will be explored.

WMNS 382/CRJS 382 Women in the Justice System

Semester course; 3 lecture hours. 3 credits. Surveys the special situation of women in the justice system as offenders, as victims and as professional practitioners. Applicable laws and public policy are studied in detail. Issues are punctuated by field trips to juvenile/adult programs and institutions.

WMNS 384/ENGL 384 Women Writers

Semester course; 3 lecture hours. 3 credits. A study of selected literature written by women and about women writers. May be repeated once when a different group of writers is studied.

WMNS 390/AFAM 390/HIST 390 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. An examination of various aspects of slavery in Africa primarily, and selected parts of the African Diaspora including the United States, Canada and the Caribbean, with emphasis on African conditions of servility, the Atlantic slave trade and chattel slavery. The role gender and race played in slavery will be given particular attention.

WMNS 391 Topics in Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of 12 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

WMNS 401 Topical Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: 21 credits in women's studies or permission of the instructor. Students are required to produce a senior research project on a topic related to the theme of the seminar.

WMNS 414/PSYC 414 Psychology of Women's Health

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions.

WMNS 452/ENGL 452/LING 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. A study of relationships between the ways women and men use language, relationships between language and power and ways women and men use language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

WMNS 457/ANTH 457 Women, Art and Society

Semester course; 3 lecture hours. 3 credits. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?"

WMNS 491 Topics in Women's Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with a different topic for a total of 12 credits. An in-depth examination of specialized areas of interest in women's studies. See the Schedule of Classes for specific topics to be offered each semester.

WMNS 492 Independent Study

Semester course; variable credit. Maximum of four credits per semester; maximum total of four credits in all independent study courses. Open generally to students of only junior and senior standing who have acquired at least 12 credits in women's studies courses. Determination of the amount of credit and permission of the instructor and coordinator must be obtained prior to registration for the course.

Department of Biology

Leonard A. Smock

Professor and Department Chair (1979)
B.S. 1969 University of Illinois
M.S. 1970 University of Illinois
Ph.D. 1979 University of North Carolina

Donald R. Young

Professor and Associate Department Chair (1984)
B.S. 1975 Clarion State University
M.S. 1979 University of Wyoming
Ph.D. 1982 University of Wyoming

The curriculum in biology prepares students for graduate study in biology, for employment in laboratory or field programs in private industry or government agencies, and for teaching in secondary schools. This curriculum also prepares students for admission into schools of medicine, dentistry and

veterinary medicine, and into allied health programs.

The Department of Biology offers the Bachelor of Science in Biology.

Extended Teacher Preparation Program

Biology majors interested in teaching careers in elementary, secondary or special education can enroll in the Extended Teacher Preparation Program which simultaneously awards a bachelor's degree in biology and a master's degree in teaching. For more information about this program jointly administered by the College of Humanities and Sciences and the School of Education, contact the School of Education's Office of Academic Services.

Pre-professional study for the health sciences

The Bachelor of Science in Biology is a four-year course of study preparing students for medical, dental or veterinary school.

Graduate programs in biology

For information about the M.S. and Ph.D. programs, see the Graduate and Professional Programs Bulletin.

Nonmajor electives

The department offers a range of courses that do not fulfill requirements of the major or minor and are not specific requirements for pre-health science students. These courses are designed to develop the general science literacy of non-biology majors.

Degree requirements – Bachelor of Science in Biology

The bachelor's curriculum in biology requires a minimum of 120 credits, with at least 40 of those credits in biology. Up to four credits of biochemistry may be applied toward the major.

Majors must take STAT 210 Basic Practice of Statistics, and one additional course from the following options:

1. A statistics (STAT) course numbered above 210.
2. A mathematics (MATH) course numbered 200 or above.

Before enrollment into any of these mathematical sciences options, all students must take the Mathematical Placement Test. Depending on the test results, students may be placed in MATH 151 Precalculus Mathematics before being admitted into one of the courses listed above.

Below is a list of required courses and the indicated recommended sequence.

BIOCORE. The following courses must be taken by majors:

BIOL 151, 152 and BIOZ 151L, 152L
Introduction to Biological Science and Laboratory I and II
BIOL 218 Cell Biology
BIOL 310 Genetics
BIOL 317 Ecology

A "C" grade or better is required in BIOL 151, 152, BIOZ 151L, 152L and BIOL 218 before enrollment in advanced BIOL courses.

A grade of "C" is required in each prerequisite course: CHEM 100 (if required through placement test), CHEM 101, CHEM 102, CHEM 301 and CHEM 302

Organismal biology. One course from the animal group and one from the plant group. At least one of the two courses selected must include a laboratory. For those courses in which the laboratory is a separate section from the lecture, the laboratory may be taken concurrently with or subsequently to the lecture.

Animal group

BIOL 301 Comparative Vertebrate Anatomy
BIOL 302 Animal Embryology
BIOL 309 Entomology
BIOL 312 Invertebrate Zoology
BIOL 313 Vertebrate Natural History
BIOL 416 Ornithology
BIOL 417 Mammalogy
BIOL 435 Herpetology
BIOL 445 Neurobiology and Behavior
BIOL 503 Fish Biology

Plant group

BIOL 320 Biology of the Seed Plant
BIOL 321 Plant Development
BIOL 512 Plant Diversity and Evolution

At least six laboratory courses must be taken from all biology courses; one of these may be BIOL 492 Independent Study or BIOL 495 Research and Thesis. Registration in BIOL 492 or 495 must be for a minimum of two-credit hours in order to count as one of the six required laboratory courses.

Freshman year

BIOL 151, 152 Introduction to Biological Science and BIOZ 151L, 152L Introduction to Biological Science Laboratory I and II, LFSC 101 Introduction to Life Sciences, CHEM 101-102 General Chemistry and CHEZ/FRSZ 101L, 102L General Chemistry Laboratory I and II, and mathematical sciences courses selected from the options described previously.

Sophomore year

BIOL 218 Cell Biology, BIOL 317 Ecology, one additional biology course preferably with lab, CHEM 301-302 Organic Chemistry and CHEZ 301L-302L Organic Chemistry Laboratory I and II, and mathematical sciences courses if not already completed.

Junior year

Two courses from the BIOCORE and one additional biology course, PHYS 207, 208 University Physics or PHYS 201-202 General Physics.

Senior year

Remaining biology major courses.

Transfer or change-of-major students

Students who change their major to biology after having completed BIOL 109, 110 and BIOZ 109L, 110L or transfer to VCU with a general biology course equivalent to these courses are allowed to count these courses toward the biology major in lieu of BIOL 151, 152, BIOZ 151L, 152L. BIOL 101, 102 and 103 and their laboratories may not be used toward the biology major, but may be used as general electives toward the bachelor's degree.

No more than eight credits of the 100-level (or introductory level) courses can be applied to the major.

Minor in biology

The minor in biology consists of a minimum of 19 credits in biology, including the following: BIOL 151, 152 and BIOZ 151L, 152L Introduction to Biological Science and Laboratory I, II; BIOL 218 Cell Biology; BIOL 310 Genetics; and BIOL 317 Ecology. Three biology laboratory

experiences are required including BIOZ 151L and 152L, but not including BIOL 492 Independent Study or BIOL 495 Research and Thesis. Substitutions for BIOL 151-152 and laboratories may be made on a case-by-case basis. A grade of “C” or better must be earned in each class.

Students also are required to complete CHEM 101-102, CHEZ/FRSZ 101L, 102L General Chemistry and General Chemistry Laboratory I and II.

Honors in biology

Biology majors may graduate with honors in biology. To qualify, students must have overall and biology GPAs of at least 3.50 and must complete the following courses in this sequence: BIOL 392 Introduction to Research, at least four credits of BIOL 495 Research and Thesis, and BIOL 490 Research Seminar. Grades of “A” or “B” must be earned in each of the listed courses. Students who qualify will have the notation “Honors in Biology” placed on their transcript. Students must meet all Department of Biology requirements for graduation. Students should consult with their academic advisers to create a program suitable to their particular needs and interests.

Cooperative Education Program

Qualifying students pursuing undergraduate degrees in biology are eligible for the Cooperative Education Program. A full description of this program appears in the “Division of Student Affairs and Enrollment Services” chapter of this bulletin.

Courses in biology (BIOL)

The following courses do not apply toward the major in biology: BIOL 101, BIOZ 101L, BIOL 102, BIOZ 102L, BIOL/ENVS 103, BIOZ/ENVZ 103L, BIOL 201, BIOZ 201L, BIOL 205, BIOZ 205L, BIOL/PHIS 206, BIOZ/PHIZ 206L, BIOL 209, BIOZ 209L, BIOL 217, BIOL 315 and BIOL 332.

BIOL 101 Biological Concepts

Semester course; 3 lecture hours. 3 credits. A topical approach to basic biological principles. Topics include molecular aspects of cells, bioenergetics, photosynthesis, cellular respiration, cellular and organismal reproduction, genetics and evolution, and ecology. Not applicable for credit toward the B.S. in biology. Both BIOL 101 and BIOL 109 or 110 may not be offered for degree credit.

BIOZ 101L Biological Concepts Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 101. Laboratory exercise correlated with BIOL 101. Not applicable for credit toward the B.S. in biology.

BIOL 102 Science of Heredity

Semester course; 3 lecture hours. 3 credits. Basic scientific principles of genetics and its impact on individuals and society. Draws together principles of biology, chemistry, mathematics, ethics and sociology. Topics include principles of inheritance, DNA structure and function, biotechnology and its impact on society, the nature of various genetic disorders, genetic screening and counseling, population genetics and the bioethics of genetic manipulation. Not applicable for credit toward the B.S. in biology. Not applicable as a prerequisite for any biology course at the 200 level or above.

BIOZ 102L Science of Heredity Laboratory

Semester course; 2 hours. 1 credit. Pre- or corequisite: BIOL 102 (113). Laboratory exercises correlated with BIOL 102. Not applicable for credit toward the B.S. in biology. Not applicable as a prerequisite for any biology course at the 200 level or above.

BIOL 103/ENVS 103 Environmental Science

Semester course; 3 lecture and 1 online recitation hours. 4 credits. Students are required to participate in the classroom lecture and in the online recitation via high-speed connection. Basic scientific principles of environmental processes. Draws together aspects of biology, chemistry, geology, physics and sociology. Among the topics covered are ecology, natural resources, air and water resources, energy and recycling, population biology and sustainable global societies. Not applicable for credit toward the B.S. in biology. Not applicable as a prerequisite for any biology course at the 200 level or above.

BIOZ 103L/ENVZ 103L Environmental Science Laboratory

Semester course; 2 hours. 1 credit. Pre- or corequisite: BIOL/ENVS 103. Laboratory exercises correlated with BIOL/ENVS 103. Not applicable for credit toward the B.S. in biology. Not applicable as a prerequisite for any biology degree. Not applicable as a prerequisite for any biology course at the 200 level or above.

BIOL 151 Introduction to Biological Science I

Semester course; 3 lecture hours. 3 credits. Principles of plant biology including cell biology, physiology and evolution of plant diversity on Earth. Designed for biology majors. BIOL 151 may be taken after BIOL 152.

BIOZ 151L Introduction to Biological Science Laboratory I

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: BIOL 151. Laboratory investigation of plant genetics, physiology and evolution, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 151.

BIOL 152 Introduction to Biological Science II

Semester course; 3 lecture hours. 3 credits. Principles of animal biology including genetics, physiology and evolution of animal diversity on Earth. Designed for biology majors. BIOL 152 may be taken before BIOL 151.

BIOZ 152L Introduction to Biological Science Laboratory II

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: BIOL 152. Laboratory investigation of animal genetics, physiology and evolution, with an emphasis on formation and testing of hypotheses. Laboratory exercises will elaborate themes discussed in BIOL 152.

BIOL 201 Human Biology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 101 or 103. Fundamentals of human biology, including the structure, function and disorders of human body systems, principles of human genetics and inheritance, human evolution, and the interaction of humans with the environment. Not applicable for credit toward the B.S. in biology.

BIOZ 201L Human Biology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 201. Laboratory exercises correlated with BIOL 201 Human Biology. Exercises emphasize the structure, function and disorders of human body systems, principles of human genetics and inheritance, and human evolution and ecology. Not applicable for credit toward the B.S. in biology.

A “C” grade or better in each prerequisite course (BIOL 101, BIOZ 101L, BIOL 102, BIOZ 102L, BIOL 151, BIOZ 151L, BIOL 152 and BIOZ 152L) is required for enrollment in BIOL 205, 206, 209 and 217.

BIOL 205 Basic Human Anatomy

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: “C” or better in BIOL 101 and BIOZ 101L, or equivalent. Human specimens, models and interactive software are used to study human body structures; emphasis is on the skeleto-muscular aspects. Not applicable for credit toward the B.S. in biology.

BIOL 206/PHIS 206 Human Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisites: A “C” grade or better in BIOL 101 and BIOZ 101L or equivalent. Functioning of the human body with emphasis on experimental procedures. Not applicable for credit toward the B.S. in biology.

BIOZ 206L/PHIZ 206L Human Physiology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL/PHIS 206. Functioning of the human body with emphasis on experimental procedures. Not applicable for credit toward the B.S. in biology.

BIOL 209 Medical Microbiology

Semester course; 3 lecture hours. 3 credits. Prerequisites: A “C” grade or better in BIOL 101 and BIOZ 101L or equivalent. General principles of microbiology and immunology to provide a thorough understanding of the host-microbe relationship in disease. Not applicable for credit toward the B.S. in biology.

BIOZ 209L Medical Microbiology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: BIOL 209. Techniques to culture, isolate, and identify microbes with related topics such as water coliform tests, and antibiotics and disinfectant sensitivity testing. Not applicable for credit toward the B.S. in biology.

BIOL 217 Principles of Nutrition

Semester course; 3 lecture hours. 3 credits. Prerequisites: A "C" grade or better in BIOL 101 and BIOZ 101L or equivalent. An introduction to basic principles of nutrition and their application in promoting growth and maintaining health throughout the life cycle. Not applicable for credit toward the B.S. in biology.

A "C" grade or better in each prerequisite course (BIOL 151, BIOZ 151L, BIOL 152, BIOZ 152L or equivalent) is required for enrollment in all advanced biology courses (BIOL 218 or higher).

BIOL 218 Cell Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: A "C" grade or better in BIOL 151, 152 and BIOZ 151L, 152L or equivalent; eight credits in chemistry. An introductory study of the molecular biology of the cell including protein chemistry, genetic mechanisms and cellular metabolism.

A "C" grade or better in BIOL 218 is required for enrollment in all courses for which it is a prerequisite.

BIOL 291 Topics in Biology

Semester course; variable credit. A study of a selected topic in biology. See the Schedule of Classes for specific topic(s) and prerequisites.

BIOL 292 Independent Study

Semester course; variable credit. Maximum of two credits per semester; maximum total credit for all independent study courses (BIOL 292 and/or 492) six credits. Prerequisites: Eight credits in biology and an overall GPA of 3.0. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Designed to allow students to accomplish independent readings of biological literature under the supervision of a staff member.

BIOL 300 Biotechniques Laboratory

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: BIOL 218 or equivalent. Basic methods used in cellular and molecular biology focusing on laboratory methods and instrumentation, experimental design and data collection, analysis and presentation. Exercises may include: DNA and RNA amplification, isolation and analysis; molecular genotyping and DNA sequence analysis; DNA cloning; chromatography; electrophoresis; immunoassays; spectroscopy; cell and tissue culture.

BIOL 301 Comparative Vertebrate Anatomy

Semester course; 3 lecture and 6 laboratory hours. 5 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. The evolution of vertebrate forms as demonstrated by anatomical studies of selected vertebrate types.

BIOL 302 Animal Embryology

Semester course; 3 lecture and 4 laboratory hours. 5 credits. Prerequisite: "C" or better in BIOL 218. Basic reproductive and developmental processes during animal embryonic development. Includes programming/packaging in the egg, cell-cell interactions and basic organogenesis. Cellular mechanisms and the role of

differential gene activity in developmental processes and experimental work using living invertebrate and vertebrate embryos.

BIOL 303 Bacteriology

Semester course; 3 lecture hours. 3 credits. Prerequisite: "C" or better in BIOL 218. The morphological, biochemical, taxonomic, genetic and evolutionary characteristics of bacteria. Focuses on the structural, mechanical and biochemical adaptations employed by bacteria in their interactions with host cells and substrates.

BIOZ 303L Bacteriology Laboratory

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: BIOL 303. Laboratory application of techniques and concepts in bacteriology. Emphasis is placed on techniques to isolate, culture and identify bacteria; genetics and molecular biology of bacteria; safety and aseptic protocols; assays for antibiotic and disinfectant susceptibility.

BIOL 307 Aquatic Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent, BIOL 317, CHEM 102 and CHEZ/FRSZ 102L. The physical, chemical and especially the biological aspects of freshwater ecosystems.

BIOZ 307L Aquatic Ecology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 307. Laboratory and field studies of the biota of aquatic habitats and their relationship with the environment.

BIOL 308 Vertebrate Histology

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: A "C" grade or better in BIOL 218. Microanatomy of vertebrate cells, tissues and organs and the relationship of structure to function. Laboratory work involves an in-depth study of vertebrate microanatomy at the light microscope level as well as an introduction to techniques used for the preparation of materials for histological study.

BIOL 309 Entomology

Semester course; 2 lecture and 6 laboratory hours. 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Field and laboratory work emphasized to illustrate insect diversification, diagnostic features, habitats and development patterns. A project is required and some independent work will be necessary.

BIOL 310 Genetics

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 218. The basic principles of molecular and applied genetics of plants, animals and microorganisms.

BIOZ 310L Laboratory in Genetics

Semester course; 4 laboratory hours. 2 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Prerequisite or corequisite: BIOL 310. Exercises and experiments are designed to demonstrate the laws of heredity using a variety of prokaryotic and eukaryotic organisms. Topics may include probability and statistics, cell division, particulate inheritance including X-linked examples, genetic mapping, chromatography, isolation and analysis of DNA, population genetics.

BIOL 311 Animal Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 218. Physiological principles of animal cells, tissues and organs from the viewpoint of chemical and physical phenomena.

BIOZ 311L Animal Physiology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 311. Experimental methods in physiology.

BIOL 312 Invertebrate Zoology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. A survey of the invertebrate animals with emphasis on environmental interactions. A weekend trip to a marine environment is required.

BIOZ 312L Invertebrate Zoology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 312. A laboratory survey of the invertebrate animals, with emphasis on environment interactions. A weekend trip to a marine environment is required.

BIOL 313 Vertebrate Natural History

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. The natural history of vertebrates with emphasis on the species native to Virginia.

BIOZ 313L Vertebrate Natural History Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 313. Laboratory exercises focusing on the natural history of vertebrates, with emphasis on the species native to Virginia.

BIOL 314/FRSC 314 Introduction to Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151-152, CHEM 102 or equivalent. The fundamentals, principles, techniques and applications of cell biology and genetics. Emphasis is on nucleic acids and proteins. Not applicable for credit toward the B.S. degree in biology.

BIOL 315/ENVS 314/INTL 314 Man and Environment

3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. A comparative study of the ecology and natural history of human populations, including the environments as determining factors in the evolution of human institutions and technology, resources management and population crises; cultural traditions as mechanisms of population control; basic theory of population biology. Not applicable for credit toward the B.S. in biology.

BIOL 317 Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. An introduction to the basic principles of ecology, including interactions among organisms and influences of the physical environment.

BIOZ 317L Ecology Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 317. A field-oriented course that provides experience in

ecological research, including experimental design, instrumentation, data collection and data analysis.

BIOL 320 Biology of the Seed Plant

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. The physiology, structure and adaptation of seed plants.

BIOL 321 Plant Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 218. A survey of the developmental changes that take place during the life cycle of lower and higher plants. Emphasis is placed on the control factors that are involved in regulating the ordered changes which take place during development.

BIOZ 321L Plant Development Laboratory

Semester course; 4 laboratory hours. 2 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 321. An experimental approach applied to a phylogenetic survey of developmental model systems. Observational and experimental protocols will be used to collect data and gather information. Problem solving skills will be utilized to analyze and present experimental results.

BIOL 332/ENVS 330 Environmental Pollution

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent, and eight credits in biology. The pollution in the environment with emphasis on the procedures for detection and abatement. Not applicable for credit toward the B.S. in biology.

BIOL 341/ANTH 301 Human Evolution

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" or better in ENGL 200. Introduces the range of human diversity as well as a broad understanding of evolution and evolutionary biology, particularly as it applies to hominid evolution. Specific topics include basic genetics, primatology, paleontology, and growth and development. Not applicable for credit toward the B.S. in biology.

BIOL 351/BNFO 301 Introduction to Bioinformatics

Semesters course; 3 lecture hours. 3 credits. Prerequisites: BIOL 218 and MATH 200. Corequisite: CHEM 301. Introduction to the basic concepts, tools and possibilities of bioinformatics, the analysis of large bodies of biological information. The course stresses problem solving and integrative projects, making extensive use of exercises in class that draw on bioinformatics resources on the Web and on local servers.

BIOL 361 Biomedical Research

Semester course; 1 lecture hour. 1 credit. Pre- or corequisite: BIOL 218. An introduction to biomedical research projects.

BIOL 391 Topics in Biology

Semester course; variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. A study of a selected topic in biology. See the Schedule of Classes for specific topic(s) and prerequisites.

BIOL 392 Introduction to Research

Semester course; 2 lecture/demonstration hours. 1 credit. Prerequisites: ENGL 200, STAT 208 or 210, BIOL 151, 152, BIOZ 151L, 152L Introduction to Biological Science I and II and Laboratories, BIOL 218 Cell Biology; BIOL 310 Genetics; BIOL 317 Ecology and one of the following laboratory experiences: BIOL 300 Experimental Methods, BIOZ 310L Genetics

Laboratory or BIOZ 317L Ecology Laboratory as well as junior/senior status. An introduction to the scientific process, including the mechanics of problem definition, information gathering and experimental design. Experimentation is discussed in context with methods of data collection and analysis; some basic research techniques are demonstrated. Aims are to prepare the student for future research experiences, and to have the student write detailed research proposals.

BIOL 401 Applied and Environmental Microbiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 218. The biology and chemical activities of microorganisms (bacteria, algae, virus and fungi) of industrial, pharmaceutical and agricultural importance.

BIOL 403/ANTH 403 Primatology

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 301. Primatology investigates the taxonomic relationships among primates through comparative anatomy, comparative behavior and comparative biochemistry. Study of primate evolution, demography, subsistence, reproduction, social organization, communication systems and ecology. Not applicable for credit toward the B.S. in biology.

BIOL 415 Aquatic Macrophytes

Semester course; 1 lecture and 5 laboratory hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; BIOL 410 or 411. Field and laboratory study of vascular plants or aquatic habitats; including collection and identification, and consideration of the ecology, morphology and economic value of aquatic macrophytes.

BIOL 416 Ornithology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent, and eight credits of biology or permission of instructor. Basic biology of birds, with emphasis on their role in the environment.

BIOZ 416L Ornithology Laboratory

Semester course; 3 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 416. Techniques of identifying, counting and analyzing behavior of birds in the field.

BIOL 417 Mammalogy

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; 12 credits of biology and permission of instructor. Study of the characteristics, adaptive radiation and distribution of mammals, with emphasis on North American forms.

BIOL 431 Introduction to Marine Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; BIOL 317 and CHEM 102 and CHEZ/FRSZ 102L. An introduction to physical, chemical and geological oceanography and a more detailed treatment of the organisms and ecological processes involved in the pelagic and benthic environments of the world's oceans and estuaries.

BIOL 435 Herpetology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; BIOL 317 or equivalent. The evolution, ecology, structure, taxonomy and behavior of reptiles and amphibians.

BIOZ 436L Laboratory in Herpetology

Semester course; 2 laboratory hours. 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisite: BIOL 435. Identification, behavior, structure and ecology of amphibians and reptiles. Two Saturday field trips are required.

BIOL 438/FRSC 438 Forensic Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 Genetics or equivalent; CHEM 302 Organic Chemistry II and CHEZ 302L Organic Chemistry II Laboratory. Provides an understanding of various DNA testing methodologies and their applicability to forensic science. Students will learn the skills necessary to evaluate the applicability of each method as it applies to particular case situations. Not applicable for credit toward the B.S. degree in biology.

BIOZ 438L/FRSZ 438L Forensic Molecular Biology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories. Students also will explore and practice expert witness testimony in a mock trial setting with crime lab analysts as the judge and jury. Not applicable for credit toward the B.S. degree in biology.

BIOL 445 Neurobiology and Behavior

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; BIOL 317 or equivalent. The study of animal behavior stressing ecological, evolutionary and neurobiological approaches.

BIOL 450-451 Biology of Cancer I and II

Continuous course; 3 lecture hours for fall semester, 1 lecture and 12 laboratory hours for spring semester. 3-4 credits. Prerequisite: "C" or better in BIOL 218, completion of BIOL 450 and instructor's permission to enroll in BIOL 451. An examination of the cellular, molecular and clinical aspects of cancer development, progression and treatment.

BIOL 455 Immunology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent; BIOL 310. A comprehensive introduction to the immune system of higher animals, emphasizing the molecular and cellular basis for antibody-mediated immunity.

BIOL 490 Research Seminar

Semester course; 1 credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Pre- or corequisites: BIOL 492 or 495, and senior status. Opportunity for students to develop skills necessary for effective oral presentation of their research work. Activities include a variety of seminar discussions and activities such as preparation of visual materials and statistical analysis of data. Students will make several oral presentations directly related to their specific BIOL 492 or 495 projects.

BIOL 491 Topics in Biology

Semester course; variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. A study of a selected topic in biology. See Schedule of Classes for specific topic(s) and prerequisites.

BIOZ 491L Topics in Biology Laboratory

Semester course; variable credit. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Laboratory investigations in a selected topic of biology. See Schedule of Classes for specific topic(s) and prerequisites.

BIOL 492 Independent Study

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all independent study courses (BIOL 292, 492 and/or 495). Prerequisite: One of the following courses: BIOL 300 Experimental Methods, BIOZ 310L Laboratory in Genetics or BIOZ 317L Ecology Laboratory, or permission of the chair of the Department of Biology. A proposal acceptable to the supervising faculty member and departmental chair is required. Projects should include data collection and analysis, learning field and/or laboratory techniques, and/or mastering experimental procedures, all under the direct supervision of a faculty member. A minimum of three hours of supervised activity per week per credit hour is required. A final report must be submitted at the completion of the project. A minimum of two credits is required for the course to count as a laboratory experience. Graded as pass/fail.

BIOL 495 Research and Thesis

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all undergraduate research in biology (BIOL 292, 492, 495). Prerequisites: BIOL 392, permission of the supervising faculty member and a research proposal acceptable to the departmental chair. Activities include field and/or laboratory research under the direct supervision of a faculty mentor. A minimum of three hours of supervised activity per week per credit hour is required. Research projects must include experimental design and analysis of data. A written thesis of substantial quality is required upon completion of the research. A minimum of two credits is required for the course to count as a laboratory experience. A minimum of four credits is required for Honors in Biology.

BIOL 496 Biology Preceptorship

Semester course; maximum 4 credits. Prerequisites: BIOL 151, 152 and BIOZ 151L, 152L, or equivalent. Open to juniors and seniors who have completed 14 credits of biology (including the relevant core course) and have an overall GPA of 3.0 or better. Permission of instructor and departmental chair required prior to registration. Preceptors will conduct review sessions for students enrolled in one of the following biology core courses: BIOL 218, BIOL 317 or BIOL 310. Preceptorship cannot be repeated for the same course for biology credit. Preceptors will attend all class lectures, prepare course study/review material and lead three hours of review sessions each week under the guidance of the faculty adviser. A preproposal and final report are required. Graded as pass/fail.

Courses at the 500 level listed in this bulletin are open to qualified seniors and graduate students only.

BIOL 502/MICR 502 Microbial Biotechnology

Semester course; 3 lecture hours. 3 credits. Offered: I. Prerequisites: MICR 504 or equivalent, BIOC 503-504 or equivalent. Open to qualified seniors and graduate students only. Discussion of the application of basic principles to the solution of commercial problems.

The course will cover the historical principles in biotransformations as related to primary and secondary metabolism, as well as recombinant DNA technology and monoclonal antibodies and products resulting from the application of recombinant DNA technology.

BIOL 503 Fish Biology

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317 or equivalent. Open to qualified seniors and graduate students only. Classification, behavior, physiology and ecology of fishes. Laboratories will emphasize field collection of fish and identification of specimens.

BIOL 504 Comparative Animal Physiology

Semester course; 3 lecture and 4 laboratory hours. 4 credits. Prerequisites: BIOL 218 and CHEM 301-302 and CHEZ 301L, 302L. Open to qualified seniors and graduate students only. Comparative physiology of animals with a molecular emphasis.

BIOL 507 Aquatic Microbiology

Semester course; 2 lecture and 4 laboratory hours. 4 credits. Prerequisites: BIOL 303 and 307 or equivalents. Open to qualified seniors and graduate students only. This course will involve a practical approach to the methods used to culture, identify and enumerate specific microorganisms that affect the cycling of elements in aquatic systems and those that affect or indicate water quality.

BIOL 508 Barrier Island Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 317 or equivalent, or permission of instructor. A study of the physical factors affecting the formation of barrier islands, adaptations of plants and animals for colonization and persistence in these harsh environments, and how coastal ecological processes conform to general ecological theory. Examples and problems pertaining to Virginia and the southeastern United States are emphasized.

BIOL 510 Conservation Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 and BIOL 317 (or equivalents) or permission of instructor. Open to qualified seniors and graduate students only. Explores the accelerated loss of species due to increasing human population pressure and the biological, social and legal processes involved in conserving biodiversity.

BIOL 512 Plant Diversity and Evolution

Semester course; 3 lecture and 4 laboratory hours. 4 credits. Prerequisites: BIOL 218 and 310 or equivalents, or permission of instructor. Taxonomy, diversity and evolutionary history of vascular plants (including ferns, gymnosperms and flowering plants). Lecture emphasis on evolutionary relationships; laboratory emphasis on plant recognition and identification, especially of the Virginia flora, including some field trips to areas of local botanical interest.

BIOL 514 Stream Ecology

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: BIOL 317. Open to qualified seniors and graduate students only. A study of the ecology of streams and rivers. Laboratory emphasis is on the structure and functioning of aquatic communities in mountain to coastal streams.

BIOL 516/HGEN 516 Population Genetics

Semester course; 3 lecture hours. 3 credits. Genetic and ecological factors affecting normal and abnormal

variation within and between populations of organisms.

BIOL 518 Plant Ecology

Semester course; 3 lecture and 2 laboratory hours. One three-day field trip is required. 4 credits. Prerequisite: BIOL 317. Open to qualified seniors and graduate students only. A lecture, field and laboratory course concerned with the development, succession and dynamics of plant communities and their interrelations with climate, soil, biotic and historic factors.

BIOL 520 Population Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 and BIOL 317 or permission of instructor. Open to qualified seniors and graduate students only. Theoretical and empirical analysis of processes that occur within natural populations, including population genetics, population growth and fluctuation, demography, evolution of life history strategies and interspecific interactions. Quantitative models will be used extensively to explore ecological concepts.

BIOL 521 Community Ecology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317 or equivalent. Open to qualified seniors and graduate students only. Theoretical and empirical analysis of the structure and function of natural communities, ecosystems and landscapes.

BIOL 522 Evolution and Speciation

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 or equivalent. Open to qualified seniors and graduate students only. Evolutionary principles, with emphasis on genetic and environmental factors leading to changes in large and small populations of plants and animals, and the mechanisms responsible for speciation.

BIOL 524 Endocrinology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 218 and CHEM 301-302 and CHEZ 301L, 302L or equivalent. Open to qualified seniors and graduate students only. Hormonal control systems at the organ, tissue and cellular level. Although the major emphasis will be on vertebrate endocrine systems, some discussion of invertebrate and plant control systems will be covered.

BIOL 530/HGEN 501 Human Genetics

Semester course; 3 credits. Offered: I. Prerequisites: BIOL 310 and CHEM 301-302 and CHEZ 301L, 302L or equivalents. Open to qualified seniors and graduate students only. Emphasizes a broad approach, at an advanced level, to human genetics. Explores topics including cytogenetics, pedigree analysis, gene mapping, aneuploid syndromes, inborn error of metabolism, neonatal screening, cancer, genetic engineering, behavior and intelligence, prenatal diagnosis and genetic counseling.

BIOL 532 Water Pollution Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 317 or equivalent and one year of general chemistry. A study of various forms of pollution in aquatic environments, including the basic principles and effects of water pollution on aquatic organisms and ecosystems, ecotoxicology, waterborne pathogens, invasive species, water pollution monitoring and environmental laws.

BIOL 540 Fundamentals of Molecular Genetics

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 310 or consent of instructor. The basic principles

and methodologies of molecular biology and genetics are applied to genome organization, replication, expression, regulation, mutation and reorganization. Emphasis will be placed on a broad introduction to and integration of important topics in prokaryotic and eukaryotic systems.

BIOL 550 Ecological Genetics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: BIOL 310 and BIOL 317 (or equivalents) or permission of instructor. Open to qualified seniors and graduate students only. Introduces the principles of ecological genetics, especially those with foundations in population and quantitative genetics, and illustrates conceptual difficulties encountered by resource stewards who wish to apply genetic principles. Explores various types of biological technologies employed by conservation geneticists and provides means for students to gain experience in analyzing and interpreting ecological genetic data.

BIOL 565 Advances in Cell Signaling

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 218 or equivalent. Topical course focusing on advances in cellular communication by cytokines, hormones and neurotransmitters. Each semester, the course focuses on a different topic. Past topics have included cancer biology, allergy and asthma, and autoimmunity.

BIOL 580 Eukaryotic Biotechnology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 and BIOZ 310L, or graduate standing in biology or related fields. Open to qualified seniors and graduate students only. Discussion of principles, concepts, techniques, applications and current advances in cellular and molecular biology aspects of biotechnology for animal and plant cells. The course will cover molecular construction of foreign genes; DNA cloning; technologies for DNA, RNA and protein analyses; nonvector and vector-mediated genetic transformation; gene regulation in transgenic cells; cell and tissue culture; cell fusion; and agricultural, medical and other industrial applications.

BIOL 585 Virology

Semester course; 3 lecture hours. 3 credits. Prerequisites: 16 credits in biology; a "C" grade or better in BIOL 218 or equivalent; eight credits in chemistry. Open to qualified seniors and graduate students only. A comprehensive introduction to virology encompassing viruses of vertebrates, invertebrates, plants and bacteria. Topics include physical and chemical characterization, classification, detection, replication, genetics, diseases, immunology, epidemiology and interactions of neuromotor disorders of infants and children. Critically surveys current theory and practice in neuromotor therapeutics for children and adults.

BIOL 591 Special Topics in Biology

Semester course; 1-4 credits. An in-depth study of a selected topic in biology. See the Schedule of Classes for specific topic(s) and prerequisites. If several topics are offered, students may elect to take more than one.

Department of Chemistry

Fred M. Hawkrige

Professor and Department Chair (1976)
B.S. 1966 University of Georgia
Ph.D. 1971 University of Kentucky

Sally S. Hunnicutt

Associate Professor and Assistant Department Chair (1998)
A.B. 1983 Duke University
M.S. 1986 University of Utah
Ph.D. 1990 University of Cincinnati

The curriculum in chemistry prepares students for graduate study in chemistry and related fields and for admission to schools of medicine, dentistry and veterinary medicine. It also prepares students to teach in secondary schools, or to work in chemical and industrial laboratories and in related fields of business and industry. The department also offers required and elective courses in chemistry to students in other programs of study.

The Department of Chemistry offers five areas of concentration for completing the Bachelor of Science program in chemistry — the chemical science concentration, the professional chemist concentration, the professional chemist with honors concentration, the biochemistry concentration and the chemical modeling concentration.

The chemical science concentration is tailored for the pre-professional study of the health sciences and other interdisciplinary areas where an emphasis on chemistry is sought. This concentration for the bachelor's degree in chemistry permits students to select more courses from other disciplines. With fewer requirements in mathematics, physics and chemistry, this concentration is one option for students planning to study medicine or dentistry.

The professional chemist concentration requires a greater number of chemistry courses, and is designed for students whose future studies or career plans involve chemistry as a central theme. With the proper combination of courses, this degree can be certified as meeting the requirements of the American Chemical Society.

The professional chemist with honors concentration is an intensive, research-based option for students interested in developing a research focus. This option requires a 3.0 GPA in chemistry to be maintained after completing eight credits of chemistry courses. As part of the requirement for

completing this concentration, an honors thesis is written and the work is presented as a seminar in the Department of Chemistry. With the proper combination of courses, this degree can be certified as meeting the requirements of the American Chemical Society.

The biochemistry concentration focuses on the biological aspects of chemistry, including molecular genetics and molecular biotechnology. This degree is another option for students planning to study medicine or dentistry.

The chemical modeling concentration emphasizes areas of overlap between chemistry and the mathematical sciences and computer science. Students in this concentration will focus on learning the chemistry and computer technology for modeling the structure, properties and reactivity of molecules.

Pre-professional study for the health sciences

With proper selection of electives, the B.S. degree in chemistry satisfies admission requirements to most schools of medicine, dentistry and veterinary medicine.

Extended Teacher Preparation Program

Chemistry majors in any concentration interested in teaching careers in elementary, secondary or special education may enroll in an extended program that leads to the simultaneous awarding of the bachelor's degree in chemistry and a master's degree in teaching. For detailed information, refer to the "School of Education" chapter in this bulletin.

Master of Science and doctoral programs in chemistry

For more information about these programs, refer to the Graduate and Professional Programs Bulletin.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in chemistry. A full description of this program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Degree requirements – Bachelor of Science in Chemistry

The required courses and their recommended sequences are given for each of the main degree concentrations (chemical science, professional chemist, professional chemist with honors, biochemistry and chemical modeling).

A grade of “C” or higher is required in each prerequisite course: CHEM 100 (if required through placement test), CHEM 101, CHEM 102, CHEM 301 and CHEM 302.

Chemical science

(37 credits in chemistry and 16 to 18 credits of collateral requirements)

Freshman year

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I*
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II
MATH 200 Calculus with Analytical Geometry**
MATH 201 Calculus with Analytical Geometry

Sophomore year

CHEM 301 and CHEZ 301L Organic Chemistry and Laboratory I
CHEM 302 and CHEZ 302L Organic Chemistry and Laboratory II
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory
PHYS 207 or 201 University Physics I or General Physics I
PHYS 208 or 202 University Physics II or General Physics II

Junior year

CHEM 303 and CHEZ 303L Physical Chemistry and Laboratory I
CHEM 304 Physical Chemistry
CHEM 320 Inorganic Chemistry I
CHEM 398 Professional Practices and Perspectives Seminar

Junior/senior year

Approved chemistry electives (three credits minimum) selected from the following courses or any CHEM 500-level class for which prerequisites have been met:

CHEZ 304L Physical Chemistry Laboratory II
CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry
CHEM/BIOC 403 Biochemistry or CHEM/BIOC 404 Advanced Biochemistry
CHEM 406 and CHEZ 406L Inorganic Chemistry and Laboratory II
CHEM 409 and CHEZ 409L Instrumental Analysis and Laboratory
CHEM 492 Independent Study
CHEM 493 Chemistry Internship

CHEM 510 Atomic and Molecular Structure
CHEM/MEDC 310 Medicinal Chemistry and Drug Design
CHEM/EGRC 306 Industrial Applications of Inorganic Chemistry

* All students must take the Chemistry Placement Test to determine their readiness for CHEM 101. CHEM 100 is offered for students who need further preparation, and does not count toward the 37 credits needed for the Chemistry degree.

** In preparation for MATH 200, all students must take the Mathematics Placement Test. Depending on the results, a student may be placed in the MATH 151 Precalculus Mathematics prior to enrolling in MATH 200. STAT 210 or 212 is required to meet the general education requirement in statistics.

Professional chemist

(49 credits in chemistry and 21 credits of collateral requirements)

Freshman year

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I*
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II
MATH 200 Calculus with Analytical Geometry**
MATH 201 Calculus with Analytical Geometry

Sophomore year

CHEM 301 and CHEZ 301L Organic Chemistry and Laboratory I
CHEM 302 and CHEZ 302L Organic Chemistry and Laboratory II
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory
MATH 307 Multivariate Calculus***
PHYS 207 University Physics I
PHYS 208 University Physics II

Junior year

CHEM 303 and CHEZ 303L Physical Chemistry and Laboratory I
CHEM 304 and CHEZ 304L Physical Chemistry and Laboratory II
CHEM 320 Inorganic Chemistry I
CHEM 398 Professional Practices and Perspectives Seminar

Junior/senior year

Approved chemistry electives; 13 credit minimum including at least two credits of laboratory selected from the following courses or any CHEM 500-level class for which the prerequisites have been met:

CHEM/EGRC 306 Industrial Applications of Inorganic Chemistry
CHEM/MEDC 310 Medicinal Chemistry and Drug Design

CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry
CHEM/BIOC 403 Biochemistry
CHEM/BIOC 404 Advanced Biochemistry
CHEM 406 and CHEZ 406L Inorganic Chemistry and Laboratory II***
CHEM 409 and CHEZ 409L Instrumental Analysis and Laboratory***
CHEM 492 Independent Study
CHEM 493 Chemistry Internship
CHEM 510 Atomic and Molecular Structure

* All students must take the Chemistry Placement Test to determine their readiness for CHEM 101. CHEM 100 is offered for students who need further preparation, and does not count toward the 49 credits needed for the chemistry degree.

** In preparation for MATH 200, all students must take the Mathematics Placement Test. Depending on the results, a student may be placed in the MATH 151 Precalculus Mathematics prior to enrolling in MATH 200.

*** Both of these courses are required to satisfy the requirements for the American Chemical Society certification of the Professional Chemist concentration. MATH 307 also is required for the American Chemical Society certification. Chemistry majors in the Professional Chemist concentration meet their statistics general education requirements by taking the required chemistry classes.

Professional chemist with honors

(49 credits and 21 credits of collateral requirements)

Freshman year

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I*
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II
MATH 200 Calculus with Analytical Geometry**
MATH 201 Calculus with Analytical Geometry

Sophomore year

CHEM 301 and CHEZ 301L Organic Chemistry and Laboratory I
CHEM 302 and CHEZ 302L Organic Chemistry and Laboratory II
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory
MATH 307 Multivariate Calculus***
PHYS 207 University Physics I
PHYS 208 University Physics II

Junior year

CHEM 303 and CHEZ 303L Physical Chemistry and Laboratory I
CHEM 304 and CHEZ 304L Physical Chemistry and Laboratory II
CHEM 320 Inorganic Chemistry I
CHEM 398 Professional Practices and Perspectives Seminar

CHEM 492 Independent Study (at least two credits)
Approved elective (three credit minimum selected from the following list):
CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry
CHEM/BIOC 403 Biochemistry
CHEM/BIOC 404 Advanced Biochemistry
CHEM/MEDC 310 Medicinal Chemistry and Drug Design
CHEM/EGRC 306 Industrial Applications of Inorganic Chemistry

Senior year

CHEM 492 Independent Study (minimum of four credits)
CHEM 498 Honors Thesis (minimum of one credit)
Approved elective (three credit minimum) selected from the following list:
CHEM/EGRC 306 Industrial Applications of Inorganic Chemistry
CHEM/MEDC 310 Medicinal Chemistry and Drug Design
CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry
CHEM/BIOC 403 Biochemistry
CHEM/BIOC 404 Advanced Biochemistry
CHEM 406 and CHEZ 406L Inorganic Chemistry and Laboratory II***
CHEM 409 and CHEZ 409L Instrumental Analysis and Laboratory***
CHEM 493 Chemistry Internship
CHEM 510 Atomic and Molecular Structure

* All students must take the Chemistry Placement Test to determine their readiness for CHEM 101. CHEM 100 is offered for students who need further preparation, and does not count toward the 49 credits needed for the chemistry degree.

** In preparation for MATH 200, all students must take the Mathematics Placement Test. Depending on the results, a student may be placed in the MATH 151 Precalculus Mathematics prior to enrolling in MATH 200.

*** Both of these courses are required to satisfy the requirements for the American Chemical Society certification of the Professional Chemist concentration. MATH 307 also is required for the American Chemical Society certification. Chemistry majors in the Professional Chemist concentration meet their statistics general education requirements by taking the required chemistry classes.

Biochemistry

(43 credits in chemistry and related courses and 27 to 29 credits of collateral requirements)

Freshman year

BIOL 151 and BIOZ 151L Introduction to Biological Science and Laboratory I
BIOL 152 and BIOZ 152L Introduction to Biological Science and Laboratory II

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I*
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II
MATH 200 Calculus with Analytical Geometry**
MATH 201 Calculus with Analytical Geometry

Sophomore year

BIOL 218 or BIOL/FRSC 314 Cell Biology or Introduction to Molecular Biology
CHEM 301 and CHEZ 301L Organic Chemistry and Laboratory I
CHEM 302 and CHEZ 302L Organic Chemistry and Laboratory II
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory
PHYS 207 or 201 University Physics I or General Physics I
PHYS 208 or 202 University Physics II or General Physics II

Junior year

CHEM 303 and CHEZ 303L Physical Chemistry and Laboratory I
CHEM 304 Physical Chemistry
CHEM 320 Inorganic Chemistry I
CHEM 398 Professional Practices and Perspectives Seminar

Junior/senior year

CHEM/BIOC 403 Biochemistry
CHEM/BIOC 404 Advanced Biochemistry
Approved elective (three credit minimum) selected from:
BIOL 310 Genetics (note: prerequisite is BIOL 218)
CHEM/MEDC 310 Medicinal Chemistry and Drug Design
CHEM 406 Inorganic Chemistry II
CHEM 409 and CHEZ 409L Instrumental Analysis and Laboratory
CHEM 492 Independent Study

* All students must take the Chemistry Placement Test to determine their readiness for CHEM 101. CHEM 100 is offered for students who need further preparation, and does not count toward the 40 credits needed for the Chemistry degree.

** In preparation for MATH 200, all students must take the Mathematics Placement Test. Depending on the results, a student may be placed in the MATH 151 Precalculus Mathematics prior to enrolling in MATH 200. STAT 210 or 212 is required to meet the general education requirement in statistics.

Chemical modeling

(44 credits in chemistry and related major courses and 27 credits of collateral requirements)

Freshman year

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I*

CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II
MATH 200 Calculus with Analytical Geometry**
MATH 201 Calculus with Analytical Geometry
One course in programming language selected from:
CMSC 245 Introduction to Programming Using C++
CMSC 255 Introduction to Programming

Sophomore year

CHEM 301 and CHEZ 301L Organic Chemistry and Laboratory I
CHEM 302 and CHEZ 302L Organic Chemistry and Laboratory II
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory
MATH 307 Multivariate Calculus
MATH 310 or 302 Linear Algebra or Numerical Calculus
PHYS 207 University Physics I
PHYS 208 University Physics II

Junior year

CHEM 303 and CHEZ 303L Physical Chemistry and Laboratory I
CHEM 304 and CHEZ 304L Physical Chemistry and Laboratory II
CHEM/MEDC 310 Medicinal Chemistry and Drug Design
CHEM 320 Inorganic Chemistry I
CHEM 398 Professional Practices and Perspectives Seminar
Approved elective (three credit minimum) selected from:
CHEM 492 Independent Study (computational chemistry project)
MATH 301 Differential Equations
MATH/OPER 327 Mathematical Modeling
STAT 321 Introduction to Statistical Computing (Note: prerequisite is STAT 212 and MATH 211.)

Senior year

CHEM 510 Atomic and Molecular Structure
MEDC 541 Introduction to Molecular Modeling

* All students must take the Chemistry Placement Test to determine their readiness for CHEM 101. CHEM 100 is offered for students who need further preparation, and does not count toward the 42 credits needed for the Chemistry degree.

** In preparation for MATH 200, all students must take the Mathematics Placement Test. Depending on the results, a student may be placed in the MATH 151 Precalculus Mathematics prior to enrolling in MATH 200. STAT 210 or 212 is required to meet the general education requirement in statistics.

Transfer students

Transfer students intending to major in chemistry must satisfy all chemistry major course requirements and complete a minimum

of nine credits of VCU chemistry courses at the 300-, 400- or 500-level of which no more than three credits may be CHEM 492 or CHEM 493. This restriction applies to all chemistry degree concentrations.

Minor in chemistry

The minor in chemistry requires the following courses: CHEM 101-102 and CHEZ/FRSZ 101L, 102L General Chemistry and Laboratories; CHEM 301-302 and CHEZ 301L, 302L Organic Chemistry and Laboratories; and either CHEM 309 and CHEZ 309L Qualitative Analysis and Laboratory or CHEM 303 Physical Chemistry. All 300-level chemistry courses must be taken at VCU. Consult course descriptions for prerequisites in mathematics and physics.

Courses in chemistry (CHEM)

A grade of "C" or higher is required in each prerequisite course: CHEM 100 (if required through placement test), CHEM 101, CHEM 102, CHEM 301 and CHEM 302.

In chemistry laboratories each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge, billed from the Student Accounting Department.

CHEM 100 Introductory Chemistry

Semester course; 3 lecture and 1 problem session hour. 3 credits. Prerequisite: Students must be eligible to take MATH 131 or higher. A course in the elementary principles of chemistry for individuals who do not meet the criteria for enrollment in CHEM 101; required for all students without a high school chemistry background who need to take CHEM 101-102. These credits may not be used to satisfy any chemistry course requirements in the College of Humanities and Sciences.

CHEM 101-102 General Chemistry

Continuous course; 3 lecture and 1 recitation hour. 3-3 credits. Prerequisite: CHEM 100 with a grade of "C" or higher, or a satisfactory score on the Chemistry Placement Test. Pre- or corequisite: MATH 151. Prerequisite for CHEM 102: CHEM 101 with a grade of "C" or higher. Fundamental principles and theories of chemistry, including qualitative analysis.

CHEZ 101L/FRSZ 101L General Chemistry Laboratory I

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 101. Experimental work correlated with CHEM 101 with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or

for other reasons, will incur a charge billed from the Student Accounting Department.

CHEZ 102L/FRSZ 102L General Chemistry Laboratory II

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Prerequisite: CHEZ/FRSZ 101L. Pre- or corequisite: CHEM 102. Experimental work includes qualitative analysis with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

CHEM 110 Chemistry and Society

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are presented through the use of decision-making activities related to real-world societal issues. Not applicable for credit toward the B.S. degree in chemistry.

CHEZ 110L Chemistry and Society Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 110. Experimental work correlated with CHEM 110. Not applicable for credit toward the B.S. degree in chemistry. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

CHEM 112 Chemistry in the News

Semester course; 3 lecture hours. 3 credits. The basic principles of chemistry are used to interpret newspaper and magazine articles of current interest relating to chemistry in manufacturing, the global environment and medicine. Not applicable for credit toward the B.S. degree in chemistry.

CHEM 301-302 Organic Chemistry

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L; and for CHEM 302, a "C" grade or higher in CHEM 301. A comprehensive survey of aliphatic and aromatic compounds with emphasis on their structure, properties, reactions, reaction mechanisms and stereochemistry.

CHEZ 301L Organic Chemistry Laboratory I

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. Pre- or corequisite: CHEM 301. Experimental work correlated with CHEM 301. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

CHEZ 302L Organic Chemistry Laboratory II

Continuous course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and 301L. Pre- or corequisite: CHEM 302. Experimental work correlated with CHEM 302. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

CHEM 303 Physical Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, PHYS

201-202 or PHYS 207, PHYS 208 and MATH 200-201. Ideal and nonideal gases, thermodynamics, free energy and chemical equilibrium.

CHEZ 303L Physical Chemistry Laboratory I

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L. Pre- or corequisites: CHEM 303, 309 and CHEZ 309L. This course covers experiments in calorimetry, molecular and thermodynamic properties of gases and liquids, surfaces, electrochemistry, equilibria, polymers, phase diagrams, and biophysical chemistry. Extensive report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEM 304 Physical Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 303. Kinetics, solution thermodynamics, heterogeneous equilibria, electrochemistry and introductory biophysical chemistry.

CHEZ 304L Physical Chemistry Laboratory II

Semester course; 4 laboratory hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 303, CHEM 309 and CHEZ 309L. Pre- or corequisite: CHEM 304. This course covers experiments in absorption and emission spectroscopy, infrared and Raman spectroscopy, NMR spectroscopy, kinetics, photochemistry, biophysical chemistry and modeling. Report writing, laboratory notebook writing and statistical analysis of data are emphasized. A final project may be required.

CHEM 305 Physical Chemistry for the Life Sciences

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302, CHEM 309 and MATH 200. Concepts and principles of physical chemistry as related to the life sciences, forensic science and the B.S. in science programs. Major topics include thermodynamics of proteins and nucleic acids, enzyme kinetics and spectroscopic techniques useful in biophysical research such as circular dichroism, nuclear magnetic resonance and magnetic resonance imaging.

CHEM 306/EGRC 306 Industrial Applications of Inorganic Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 302 and CHEZ 302L. Chemical engineering students: EGRC 201, EGRC 205 or permission of the instructor. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, materials and energy balance, availability and logistics of starting materials, economic impact and environmental effects.

CHEM 309 Quantitative Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and MATH 151, or equivalent. Theory and practice of gravimetric, volumetric and instrumental analysis techniques and treatment of multiple equilibria in aqueous solutions.

CHEZ 309L Quantitative Analysis Laboratory

Semester course; 3 laboratory and 1 lecture hours. 1 credit. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. Pre- or corequisite: CHEM 309. Laboratory associated with quantitative analysis.

Includes practice in volumetric and instrumental laboratory techniques as applied to measurement sciences.

CHEM 310/MEDC 310 Medicinal Chemistry and Drug Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: One year of organic chemistry. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs.

CHEM 320 Inorganic Chemistry I

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302, and CHEZ 301L, 302L. Pre- or corequisites: CHEM 309 and CHEZ 309L. A systematic, unified study of the structures, properties, reactions and practical applications of inorganic compounds.

CHEM 391 Topics in Chemistry

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. A study of a selected topic in chemistry. See Schedule of Classes for specific topics to be offered and prerequisites.

CHEM 398 Professional Practices and Perspectives Seminar

Seminar course; 1 lecture hour. 1 credit. Prerequisites: Completion of 18 credits in chemistry. Seminar course for students considering careers in chemistry-related fields covering topics such as scientific professionalism and ethics, and using chemical literature.

CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302 and CHEZ/FRSZ 301L, 302L. Theory and laboratory practice of instrumental and chemical methods applied to the analysis of organic compounds with emphasis on applications in forensic chemistry.

CHEM 403/BIOC 403 Biochemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, or equivalents with permission of instructor. A presentation of structural biochemistry, enzymology, biophysical techniques, bioenergetics and an introduction to intermediary metabolism.

CHEM 404/BIOC 404 Advanced Topics in Biochemistry

Semester course; 2 lecture hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, and CHEM/BIOC 403, or equivalents with permission of instructor. Presentations of cellular, molecular and structural aspects of biochemistry. Selected topics of biomedical research.

CHEM 406 Inorganic Chemistry II

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302, CHEZ 301L, 302L, CHEM 303-304, CHEZ 303L, 304L, CHEM 309, CHEZ 309L and

CHEM 320. An advanced study of inorganic chemistry, including inorganic spectroscopy, organometallic compounds and catalysis, and bioinorganic systems.

CHEZ 406L Inorganic Chemistry Laboratory

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. Pre- or corequisite: CHEM 406. Examination of inorganic nonmetal, transition metal and organometallic compounds using modern inorganic methods of synthesis and characterization. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

CHEM 409 Instrumental Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302, CHEM 303-304 and 309 with laboratories. Theory and practice of modern spectrophotometric, electroanalytical and chromatographic and nuclear magnetic resonance methods.

CHEZ 409L Instrumental Analysis Laboratory

Semester course; 4 laboratory hours. 2 credit. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L, CHEM 301-302, 303-304 and 309 with related laboratories. Pre- or corequisite: CHEM 409. Practice of electrochemical, spectroscopic and chromatographic methods of analysis.

CHEM 491 Topics in Chemistry

Semester course; variable credit. Maximum of four credits per semester; maximum total of six credits for all chemistry topics courses may be applied to the major. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. A study of a selected topic in chemistry. See the Schedule of Classes for specific topics to be offered and prerequisites.

CHEM 492 Independent Study

Semester course; variable credit. Maximum of four credits per semester; maximum total of eight credits for all independent study courses. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. Open generally to students of junior or senior standing who have completed CHEM 302, CHEZ 302L and CHEM 309, and have a minimum GPA of 2.5 in chemistry courses. A determination of the amount of credit and the written permission of both the instructor and the department must be procured prior to registration for the course. Investigation of chemical problems through literature search and laboratory experimentation. Written progress and final reports will be required.

CHEM 493 Chemistry Internship

Semester course; variable credit. Maximum of three credits; one credit will be given for each 150 hours (approximately one month) of part-time or full-time chemical work experience. Prerequisites: CHEM 101-102 and CHEZ/FRSZ 101L, 102L. Open to students who have completed 24 credits in chemistry. Permission of adviser and department chair must be obtained prior to registration for the course. Acquisition of chemistry laboratory experience through involvement in a professional chemistry setting. Written progress and final reports will be required.

CHEM 498 Honors Thesis

Semester course; 1 credit. Prerequisites: Completion of 29 credits in chemistry, including CHEM 398 and at least six credits of CHEM 492. Students submit to the Department of Chemistry a thesis based on their

independent study research. Students also present their results to the department as a research seminar.

CHEM 510 Atomic and Molecular Structure

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 and PHYS 208. Survey of the pertinent aspects of quantum mechanics. Line spectra, atomic structure and molecular bonding.

Department of English

Marcel Cornis-Pope

Professor and Department Chair (1988)
B.A. University of Cluj, Romania
M.A. 1968 University of Cluj, Romania
Ph.D. 1979 University of Timisoara, Romania

Nicholas A. Sharp

Assistant Professor and Associate Department Chair (1971)
B.A. 1966 University of Kansas
M.A. 1968 Ohio State University
Ph.D. 1971 Ohio State University

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Associate Professor and Director of Composition and Rhetoric (1993)
B.A. 1979 North Carolina Central University
M.L.S. 1982 North Carolina Central University
Ph.D. 1997 State University of New York, Stony Brook

Marquerite Harkness

Associate Professor and Director of Undergraduate Studies (1975)
Ph.D. 1974 State University of New York, Binghamton

The purpose of the Department of English is to teach students to see their worlds with clarity and respond to them with sensitivity, through reading and writing. Students are invited to read and explore a diversity of texts created in different times and voices and then to respond to these texts variously and critically, situating them within their contexts and discerning their important aesthetic features, rhetorical elements and social functions.

Students in this department also are encouraged to express themselves in expository or imaginative works that engage thought and feeling, evince purpose clearly, marshal appropriate evidence, and observe principles of rhetorical decorum.

The Department of English offers the Bachelor of Arts in English, which provides a broad liberal arts base for advanced study and for careers in academic and professional areas.

The department also offers required and elective courses in English composition,

language and literature for English majors and for students in other programs.

Degree requirements – Bachelor of Arts in English

The Bachelor of Arts in English requires a minimum of 120 credits, with at least 36 of those credits in the major, three of which must be 200-level (ENGL 201-299 or the equivalent) and also fulfill the general education literature requirement. A minimum of 33 credits must therefore be taken in upper-level (300, 400, 500) English courses. Six of those credits may be taken in upper-level foreign literature in the original language or foreign literature in English translation (FLET). ENGL 101, 200 (or equivalent) do not count toward the major.

ENGL 301 and ENGL 490 are writing intensive courses designed respectively as entry and capstone courses for the major. English majors should distribute their 36 credits of English course work as follows:

1. One 200-level literature class (three credits)

This is a prerequisite to all upper-level English classes. This class also may be used to fulfill the general education literature requirement.

2. ENGL 301 English Studies: Reading Literature (three credits)

This course will introduce students to at least two different literary genres (drama, poetry, prose). It should be taken at the beginning of the student's major, preferably before completing more than six hours of other upper-level English courses. Students must achieve a grade of "C" in order to complete this requirement.

3. Linguistics, writing and criticism (six credits)

Courses in this category will help students develop their skills in linguistic analysis, written expression, and literary and cultural analysis. Students must select courses from two of these three areas.

Linguistics

ENGL/LING/ANTH 449 Introduction to Linguistics
ENGL/LING 450 Modern Grammar
ENGL/LING 451 History of the English Language
ENGL/LING/WMNS 452 Language and Gender
ENGL/LING 453 Introduction to Modern Rhetoric
ENGL/LING 454/ANTH 450 Cross-cultural Communication

Writing

ENGL/CRJS 302 Legal Writing
ENGL 303 Writing in the Workplace
ENGL 304 Advanced Writing
ENGL 305 Creative Writing: Genres

ENGL/TEDU 307 Teaching Writing Skills
ENGL/MGMT 327 Business and Technical Report Writing
ENGL/THEA 426 Advanced Playwriting
ENGL 435 Advanced Poetry Writing
ENGL 437 Advanced Fiction Writing
ENGL 439 Literary Nonfiction Writing

Criticism

ENGL 350 Approaches to Literature
ENGL/WMNS 352 Feminist Literary Theory
ENGL 391 Topics in Literature (by specific topic)
ENGL 429 Form and Theory of Poetry
ENGL 430 Form and Theory of Fiction
ENGL 491 Topics in Literature (by specific topic)

4. Literature (15 credits)

Courses in this category will enable students to study literature within its historical and cultural contexts. To ensure that students select a range of courses, they must include six credits in literature prior to 1700, six credits in literature between 1700-1900, and three credits in the literature of diversity. No single course may be used to satisfy two of these requirements.

Literature prior to 1700

ENGL 335 Literature of the English Renaissance
ENGL/RELS 361 The Bible as Literature
ENGL 400 Shakespeare: The Early Works
ENGL 401 Shakespeare: The Later Works
ENGL 402 Chaucer
ENGL 403 Milton
ENGL 407 Medieval Epic and Romance
ENGL 409 Medieval Studies*
ENGL 410 Renaissance Studies*
ENGL 423 English Drama, 900-1642
ENGL 391 Topics in Literature (by specific topic)
ENGL 491 Topics in Literature (by specific topic)

Literature between 1700-1900

ENGL 320 18th-century British Literature
ENGL 321 British Literature of the Romantic Era
ENGL 322 Victorian Poetry
ENGL 371 American Literature: Colonial and Federal
ENGL 372 American Literature: American Romanticism
ENGL 373 American Literature: Realism and Naturalism
ENGL 411 18th-century British Studies*
ENGL 413 American Novels and Narratives: 19th Century and Earlier
ENGL 415 British Novel: 18th Century
ENGL 416 British Novel: 19th Century
ENGL 424 Restoration and 18th-century Drama
ENGL 391 Topics in Literature (by specific topic)
ENGL 491 Topics in Literature (by specific topic)
AMST 391 Topics in American Studies (by specific topic)
AMST 394 Perspectives in American Studies (by specific topic)

Literature of diversity

ENGL/AFAM 314 African-American Literature
ENGL/AFAM 363/INTL 366 African Literature
ENGL/AFAM 365/INTL 367 Caribbean Literature

ENGL/WMNS 384 Women Writers
ENGL/ANTH 386 Introduction to Folklore
ENGL 391 Topics in Literature (by specific topic)
ENGL 491 Topics in Literature (by specific topic)

* At the discretion of the instructor and the Women's Studies program, ENGL 409, 410 and 411 are sometimes cross-listed with Women's Studies. In such cases, they may be used to fulfill either the diversity or the historical requirements in the major, but not both.

5. Optional concentrations/electives (nine credits)

Elective courses are designed to allow students to focus a part of their English study on areas of particular interest to them. They may not be used to satisfy any of the requirements for English majors described in sections 1 – 4 above. However, students are encouraged, in consultation with their advisers, to cluster their elective courses in one of the following optional concentrations.

Literary studies (including courses grouped by historical period, genre, region, national and minority traditions, thematics, literary movement, literary influence, etc.)

Writing (including both expository and creative writing)

Criticism and theory (including approaches to literature, form and theory courses, etc.)

Cultural studies (including courses that focus on race, class, gender, ethnicity, film, popular culture, etc.)

Linguistics (including courses that focus on history of the language, cross-cultural communications, etc.)

Students are advised to consult the full listing and description of English courses before planning their elective courses.

6. ENGL 490 Senior Seminar

This course will ensure that majors will have undertaken at least one piece of sustained, researched writing. Senior seminars are intended for students nearing the completion of their studies and should be regarded as the capstone course of the major. Because of the nature of this course, senior seminars usually will not be offered during the summer. Students should plan their program with this factor in mind. When appropriate, this seminar may be used to fulfill another requirement of the major. For specific topics, see the Schedule of Classes.

Collateral requirements

In addition to the ENGL courses required for the Bachelor of Arts degree, students must complete the study of a foreign language through the intermediate level (202 or 205) by course or placement.

Minor requirements – general

English majors may minor in writing, but not in English.

Minor in English

The minor in English consists of 18 credits in upper-level (300-400) English courses. ENGL 301 English Studies: Reading Literature is strongly recommended. Students must select their courses with at least three credits in each of the following areas: literature before 1700; literature between 1700 and 1900; linguistics, advanced writing or criticism; and the literature of diversity. Three credits may be taken in foreign literature in English translation and three credits in ENGL 492 Independent Study.

Minor in writing

The minor in writing consists of 18 credits in the writing courses listed in this paragraph. ENGL 304 Advanced Composition is required and should be taken as early as possible. The other 15 credits must be from creative writing (ENGL 305, 426, 435, 437, 439) and/or from professional writing and rhetoric (ENGL/CRJS 302, ENGL 303, ENGL/MGMT 327, ENGL/LING 453, ENGL 493, and MASC 203, 305 and 341).

Extended Teacher Preparation Program

English majors interested in careers in early, middle, secondary or special education can enroll in the Extended Teacher Preparation Program which results in the simultaneous awarding of a bachelor's degree in English and a master's degree in teaching. For more information about this program administered jointly by the College of Humanities and Sciences and the School of Education contact the School of Education's Office of Student Services.

Master of Arts in English and Master of Fine Arts in Creative Writing

For information about the graduate program in English, see the Graduate and Professional Programs Bulletin.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing

undergraduate degrees in English. A full description of this program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in English (ENGL)

ENGL 001 Fundamentals of English Composition

Semester course; 3 lecture hours. 0 credits. This course is recommended for students who have not previously studied grammar and composition extensively, and will be required for those students whose English placement scores indicate inadequate preparation in grammar and composition. A course designed to prepare students for ENGL 101 by teaching them to write clear sentences and well-developed, well-organized paragraphs.

ENGL 002 English as a Second Language

Semester course; 2 laboratory and 2 lecture hours. 0 credits. Primarily for students whose English as a second language skills are at the intermediate level. Instruction in English pronunciation, grammar, vocabulary and writing for students whose native language is not English.

ENGL 100 Introductory Writing and Rhetoric Workshop

Semester course; 3 lecture hours. 3 credits. Placement in either ENGL 100 or 101 by Writing Assessment Exam. This course introduces students to the critical thinking, conventions and language requirements of academic writing. Emphasis is on coherence, fluency, grammar and usage. These credits may not be used to satisfy general education requirements.

ENGL 101 Writing and Rhetoric Workshop I

Semester course; 3 lecture hours. 3 credits. Placement in either ENGL 100 or 101 by Writing Assessment Exam. This course leads students through rhetorical practices and various stages of academic writing, with emphases on critical thinking, a variety of forms and genres, and the process of revision. It also introduces students to argument and the use of print and electronic sources. May be graded with "CO."

ENGL 114 English Grammar and Usage

Semester course; 3 lecture hours. 2 credits. Prerequisite: ENGL 101 or permission of the director of composition and rhetoric. An intensive study of the fundamentals of English grammar, usage, punctuation, mechanics and spelling through drills and written exercises. This course is not equivalent to ENGL 101 or 200, and these credits may not be used to satisfy the College of Humanities and Sciences degree requirement in composition and rhetoric.

ENGL 200 Writing and Rhetoric Workshop II

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 101 and sophomore standing (completion of 24 credits). Intensive study of the rhetorical principles and writing conventions of research-based argumentation. Emphasis on methods and criteria for finding, analyzing, evaluating and documenting information from a variety of print and electronic sources.

ENGL 101 is a prerequisite to all 200-level English courses; three credits in 200-level literature courses (or equivalent) are prerequisite to all 300- and 400-level English courses.

ENGL 201 Western World Literature I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of Western cultures from the ancient world through the Renaissance, emphasizing connections among representative works.

ENGL 202 Western World Literature II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of Western cultures from the end of the Renaissance to the present, emphasizing connections among representative works.

ENGL 203 British Literature I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of the British Isles from the Middle Ages through the 18th century, emphasizing connections among representative works.

ENGL 204 British Literature II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of the British Isles from the late 18th century to the present, emphasizing connections among representative works.

ENGL 205 American Literature I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of the United States from its origins through the 1860s, emphasizing connections among representative works.

ENGL 206 American Literature II

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to the literature of the United States from the 1860s to the present, emphasizing connections among the representative works.

ENGL 211/INTL 211 Contemporary World Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. A study of selected literature published in the last 25 years and chosen from a number of different nations and cultures.

ENGL 215 Readings in Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to literature through the study of two or more types, such as poetry, fiction, drama or essay.

ENGL 216 Readings in Narrative

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to literature with the focus on the art and structure of the narrative in a variety of forms.

ENGL 236/WMNS 236 Women in Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to literature by and/or about women.

ENGL 241 Shakespeare's Plays

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGL 101. An introduction to literature, with the focus on Shakespeare's plays, including their art and dramatic conventions.

ENGL 291 Topics in Literature

Semester course; 3 lecture hours. 3 credits. Maximum six credits in all topics courses at the 200 level. Prerequisite: ENGL 101. An introduction to literature through the in-depth study of a selected topic or genre. See the Schedule of Classes for specific topics to be offered.

ENGL 300 Practical Writing Workshop

Semester course; 3 workshop hours. 1-3 credits, 5, 10, or 15 weeks. Prerequisites: ENGL 101, 200 and three credits in 200-level literature courses (or equivalent). Practical Writing Workshop is a variable credit course covering organization, writing and revision skills useful in upper-level university classes and on-the-job situations. Classes will be conducted as workshops, discussions and lectures. Assignments may consist of essays, revision exercises, summaries, critical reviews, letters and resumes. Does not satisfy the Humanities and Sciences minimum competency writing requirements or count toward requirements for the English major or minor.

ENGL 301 English Studies: Reading Literature

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 101 and three credits in 200-level literature courses (or equivalent). Open primarily to majors; others with permission of instructor. Study of literature focused on skills helpful in the English major, introducing students to the ways in which language is used in literary texts and to the practice of writing responses to those texts. Texts will represent at least two genres (drama, poetry, prose). This course should be taken at the beginning of the student's major, preferably before completing more than six hours of other upper-level English courses. Majors are required to take ENGL 301; they must achieve at least a "C" grade to complete the requirement. Writing intensive.

ENGL 302/CRJS 302 Legal Writing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 200 and three credits in a 200-level literature courses (or equivalent). Intensive practice in writing on subjects related to law or legal problems. Emphasis on organization, development, logical flow and clarity of style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 303 Writing in the Workplace

Semester course; 3 lecture/workshop hours. 3 credits. Prerequisites: ENGL 200 and three credits in a 200-level literature courses (or equivalent). Advance study and practice of writing in fields such as technology, science, administration and government, including visual rhetoric in both print and electronic forms. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 304 Advanced Writing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 200 and three credits in a 200-level literature courses (or equivalent). An advanced study of informative and persuasive prose techniques, with attention to the relationships among content, form and style. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 305 Creative Writing: Genres

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisites: ENGL 200 and three credits in a 200-level literature courses (or equivalent). Sections: poetry, fiction, drama or multigenre. A workshop primarily for students who have not produced a portfolio of finished creative work. Students will present a collection of their work at the end of each course. See the Schedule of Classes for specific genres to be offered each semester. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 307/TEDU 307 Teaching Writing Skills

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Studies the theory and methods for teaching writing to students in middle and secondary schools. Teaches strategies for prewriting, composing, peer revision, evaluation and topic construction. Includes extensive journal and essay writing. May not be used to satisfy the literature requirements of the College of Humanities and Sciences.

ENGL 313 Southern Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the literature of the South with attention to writers such as Byrd, Poe, Chopin, Faulkner, Welty, Wolfe, O'Connor, Walker and Percy.

ENGL 314/AFAM 314 African-American Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An examination of the culture and literature of African-Americans from their roots in Africa and the African Diaspora to the present day. Authors may include Wheatley, Jacobs, Wilson, Brown, Dubois, Hurston, Wright, Gaines and Morrison.

ENGL 315 The Modern Novel

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An examination of the novel, chiefly British and European, in the 20th century.

ENGL 316 Modern Poetry

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of British and American poetry in the first half of the 20th century.

ENGL 317 Modern Drama

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the development of Continental, English and American drama since Ibsen.

ENGL 318 Contemporary Poetry

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of British and American poetry from approximately 1950 to the present for the purpose of determining the aesthetic and thematic concerns of contemporary poets.

ENGL 320 18th-century British Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A survey of representative poetry, drama and prose from the Restoration and 18th century, usually including Behn, Dryden, Pope, Swift, Johnson and Gay.

ENGL 321 British Literature of the Romantic Era

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Exploration of the literature and the cultural phenomenon of Romanticism in Britain during the years 1783-1832, with reading from poets such as Blake, Wordsworth, Byron and Shelley, and from a variety of other writers.

ENGL 322 Victorian Poetry

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A survey of the poetry of Victorian Britain,

usually including Tennyson, the Brownings, Arnold and the pre-Raphaelites.

ENGL 323 Early 20th-century British Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Representative British and Irish poetry, fiction and drama of the early 20th century, including such writers as Yeats, Joyce, Shaw, Lawrence, Conrad, Auden, Forster and Woolf.

ENGL 324 Later 20th-century British Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Representative British and Irish fiction, drama and poetry of the later 20th century, including such writers as Thomas, Golding, Lessing, Beckett, Heaney, Larkin, Fowles, Churchill and Murdoch.

ENGL 327/MGMT 327 Business and Technical Report Writing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 200 and three credits in a 200-level literature courses (or equivalent). Development of critical writing skills used in business, science, technology and government, including instructions, descriptions, process explanations, reports, manuals and proposals. The course will include such topics as communication theory, technical style, illustrations, formats for proposals, reports and manuals. May not be used to satisfy the literature requirement of the College of Humanities and Sciences.

ENGL 335 Literature of the English Renaissance

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An introduction to some of the most exciting works of a dynamic age, providing an understanding not only of the achievements of Shakespeare, Spenser and Milton, but also of the literary period from which they emerged.

ENGL 350 Approaches to Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). The study and application of various critical approaches such as historical, sociocultural, psychological, archetypal and formalist, used in analyzing literary works.

ENGL 351/TEDU 351 Children's Literature I

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Designed to give students an appreciation of children's literature; includes biography, fable, myth, traditional and modern fanciful tales and poetry, as well as a survey of the history of children's literature. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 352/WMNS 352 Feminist Literary Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses or equivalent. The study of contemporary feminist thought and feminist approaches to analyzing literature and culture. This course examines the history and development of feminist theory as a methodology in the humanities, explores several of the major theoretical trends of the last 30 years and examines applications of feminist theory to specific works of literature.

ENGL 361/RELS 361 The Bible as Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or

equivalent). Literary aspects of the Bible will be considered. Also, attention will be given to the history of the English Bible.

ENGL 363/AFAM 363/INTL 366 African Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A survey of the literature of Africa with particular emphases on fiction and on West Africa. Some attention also will be given to orature.

ENGL 365/AFAM 365/INTL 367 Caribbean Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A survey of West Indian writings. Attention will be given to African, European and Amerindian influences, as well as to the emergence of a West Indian literary tradition.

ENGL 367 Eastern Thought in Western Literature

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An exploration of the influence of Eastern thought on selected Western writers, with emphasis on the period from the 19th century to the present.

ENGL 371 American Literature: Colonial and Federal

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the most important writings from the founding of the first colonies to the establishment of the federal government with attention to such authors as Bradford, Byrd, Bradstreet, Taylor, Edwards and Franklin.

ENGL 372 American Literature: American Romanticism

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the writings of the American romantics in the 19th century, with attention to such authors as Poe, Emerson, Thoreau, Fuller, Hawthorne, Melville, Dickinson and Whitman.

ENGL 373 American Literature: Realism and Naturalism

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of writings from the end of the Civil War to World War I, with attention to such authors as Dickinson, Clemens, Howell, James, Wharton, Crane, Norris, Dreiser, Chopin and Chesnut.

ENGL 374 American Literature: Early 20th Century

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the most important writings between World War I and World War II, with attention to such authors as Anderson, Frost, Eliot, Stein, Glasgow, Fitzgerald, Wright, Cather, Hemingway, O'Neill, Hurston, Toomer and Faulkner.

ENGL 375 American Literature: Contemporary

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of American writings since the end of World War II, with attention to such authors as Albee, Auster, Baldwin, Carver, Didion, Ellison, Ginsberg, Lowell, Morrison, Percy, Plath, Salinger and Walker.

ENGL 381 Fiction into Film

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the translation of literature into film. Topical approaches vary from semester to semester. Consideration is given to the literature in its original form and to the methods of translating it into film.

ENGL 384/WMNS 384 Women Writers

Semester course; 3 lecture hours. 3 credits. May be repeated once when different groups of writers are studied. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of selected literature written by women and about women writers.

ENGL 385/ENVS 385 Nature Writing

3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the literary genre of nature writing in English.

ENGL 386/ANTH 386 Introduction to Folklore

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A survey of the basic forms of folklore including proverbs, riddles, ballads, folktales, legends, myths and games. The survey also will include approaches to collecting material and examining its literary, social and historical significance.

ENGL 390 Studies in Satire

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Studies in the satiric mode, with some attention to the definition and development of the mode.

ENGL 391 Topics in Literature

Semester course; 3 lecture hours. 3 credits. Maximum 12 credits in all topic courses at the upper-level division. Prerequisites: Three credits in a 200-level literature courses (or equivalent) and junior standing. An in-depth study of a literary genre, an aesthetic or cultural theme in literature, or of a major writer in English or American literature. See the Schedule of Classes for specific topic to be offered each semester.

ENGL 400 Shakespeare: The Early Works

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Study of the plays and poems written before 1600, focusing primarily on the comedies and histories. For ENG majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 401 Shakespeare: The Later Works

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Study of the plays written in 1600 and after, focusing primarily on the mature tragedies and late romances. For ENG majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 402 Chaucer

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of "The Canterbury Tales," with some attention to the early works. For ENG majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 403 Milton

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of shorter poems, selected prose, "Paradise Lost" and "Samson Agonistes." For ENG majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 407 Medieval Epic and Romance

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the vernacular epic and romance in England and on the continent prior to 1500.

ENGL 409 Medieval Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Studies in the English language and literature of the Middle Ages in its cultural context.

ENGL 410 Renaissance Studies:

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Studies in the English language and literature of the 16th and 17th centuries.

ENGL 411 18th-century British Studies

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Studies in the literature, language and culture of the Restoration and 18th-century England.

ENGL 413 American Novels and Narratives: 19th Century and Earlier

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups of Americans.

ENGL 414 American Novels and Narratives: 20th Century

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of selected novels with some attention to other forms of narrative that reflect the experiences of diverse groups of Americans.

ENGL 415 British Novel: 18th Century

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the British novel in the 18th century, usually including Defoe, Richardson, Fielding, Burney, Sterne, Austen, Radcliffe and Walpole.

ENGL 416 British Novel: 19th Century

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the British novel, usually including Austen, Dickens, Thackeray, the Brontës, George, Eliot and Hardy.

ENGL 423 English Drama, 900-1642

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the origin of the English drama and its development until the closing of the theaters in 1642, exclusive of Shakespeare.

ENGL 424 Restoration and 18th-century Drama

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of English drama from 1660-1777, usually including the comedy of manners, sentimental comedy, ballad opera, farce and heroic and bourgeois tragedy.

ENGL 426/THEA 426 Advanced Playwriting

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 317 or permission of instructor. A practical introduction to the creation of original scripts for theatre. Works may be selected for reading and performance. May not be used to satisfy the College of Humanities and Sciences' requirement in literature.

ENGL 429 Form and Theory of Poetry

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the poetics, including prosody, with attention to the nature and functioning of language in poetry (especially metaphor), the development of poetic genres and the process by which poems are created and come to have meaning.

ENGL 430 Form and Theory of Fiction

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of narration in verbal and other media, with attention to the nature, organization and functioning of language in narrative, the development of narrative genres and the process by which narratives are created and come to have meaning.

ENGL 433/TEDU 433 Literature for Adolescents

Prerequisite: Three credits in a 200-level literature courses (or equivalent). Designed to acquaint the prospective middle and secondary school English teacher with the nature, scope and uses of adolescent literature. The student is acquainted with reading materials for meeting the varied needs and interests of adolescents. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 435 Advanced Poetry Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Study of the craft of writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of quality work and to become proficient in critical analysis in order to evaluate and articulate the strength of their own poetry. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 437 Advanced Fiction Writing

Semester course; 3 workshop hours. 3 credits. May be repeated once for credit. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Study of the craft of fiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of short stories or portion of a novel and to become proficient in the critical analysis of fiction in order to evaluate and articulate the strength of their own work. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 439 Literary Nonfiction Writing

Semester course; 3 workshop hours. 3 credits; may be repeated once for credit. Prerequisite: ENGL 304 or ENGL 305, or permission of instructor. Advanced

study of the craft of literary nonfiction writing, with instruction and guidance toward constructive self-criticism. Workshop members will be expected to produce a substantial volume of writing or a portion of a book-length work of nonfiction, and to become proficient in the critical analysis of literary nonfiction in order to evaluate and articulate the strength of their own work.

ENGL 449/LING 449/ANTH 449 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns and units of meaning and their arrangements. May not be used to satisfy the College of Humanities and Sciences requirement in literature. For English majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 450/LING 450 Modern Grammar

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Study of modern English grammar and usage with some attention to linguistic theory. Recommended for teachers at all levels. May not be used to satisfy the College of Humanities and Sciences requirement in literature. For English majors, these courses (limit of six credits) may be counted as part of a graduate or undergraduate degree, but not both.

ENGL 451/LING 451 History of the English Language

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 452/LING 452/WMNS 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of relationships between gender and language by focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 453/LING 453 Introduction to Modern Rhetoric

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An introduction to the broad range of modern rhetorical theories, emphasizing their relationships with linguistics, literary criticism and the process of writing. May not be used to satisfy the College of Humanities and Sciences requirement in literature.

ENGL 454/INTL 454/ANTH 450 Cross-cultural Communication

Semester course; 3 lecture hours. 3 credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). A study of the dynamics of cross-cultural communication that applies linguistic tools to understanding cultural issues and solving communication problems.

ENGL 490 Senior Seminar in English

Semester course; 3 lecture hours. 3 credits. Open to English majors only. A study of a specific topic, author, movement or genre in a seminar format. Students will produce an extended, documented essay as a seminar paper. Writing intensive. See Schedule of Classes for specific topics offered each semester.

ENGL 491 Topics in Literature

Semester course; 3 lecture hours. 3 credits. Maximum 12 credits in all topics courses at the upper-division level. Prerequisite: Three credits in a 200-level literature courses (or equivalent). An in-depth study of a selected literary topic or genre or one or more major writings in English or American literature. See the Schedule of Classes for specific topic to be offered each semester.

ENGL 492 Independent Study

Semester course; variable credit. Maximum of three credits per semester. Student may take no more than nine hours total. Prerequisites: Three credits in a 200-level literature courses (or equivalent). Generally open only to upper-class students with at least 12 hours of English. To register, the student must write a proposal and have it approved by the supervising instructor, the director of undergraduate studies and the departmental chair. It may not be used for a writing project. This course is designed for students who wish to do extensive reading and writing in a subject not duplicated by any English course in this bulletin.

ENGL 493 English Internship

Semester course; 1-3 credits per semester, maximum total of six credits. Prerequisite: Three credits in a 200-level literature courses (or equivalent). Open to students with demonstrated writing ability; completion of ENGL 302, 304 or 327 is recommended. Permission and determination of credit must be established prior to registration. Students will apply research, writing and/or editing skills in an approved job in areas such as business, government, law or financial services.

ENGL 552/TEDU 552/LING 552 Teaching English as a Second Language

Semester course; 3 lecture hours. 3 credits. Provides students who plan to teach English to people whose native language is not English with a variety of instructional/learning strategies. Presents and explores current approaches and methodology, as these relate to linguistic features and pedagogy.

Courses in linguistics (LING)**LING 103/LASK 103 Introduction to Languages**

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. (Completion of this course does not qualify a student to enroll in the 200 level of a language without passing a language placement test.)

LING 401/SPAN 401 Comparative Structures

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. A comparison of English and Spanish, with emphasis on pronunciation and problems encountered in the teaching of Spanish. See the Schedule of Classes for the specific topic to be offered each semester.

LING 402/SPAN 402 Language Issues in the Spanish-speaking World

Semester course; 1-3 lecture hours. 1-3 credits. Course can be repeated with different topics up to a total of six credits. Prerequisites: Completion of nine credits of Spanish at the 300 level or the equivalent (including those specifically required for certain courses). Conducted in Spanish. Through a variety of topics this course explores the links between language and human behavior as exemplified by language phenomena in the Spanish-speaking world. Topics will be drawn mainly from sociolinguistics, language and culture, and education and applied linguistics. See the Schedule of Classes for the specific topic to be offered each semester.

LING 449/ENGL 449/ANTH 449 Introduction to Linguistics

Semester course; 3 lecture hours. 3 credits. An introduction to methods of language analysis, emphasizing the study of sounds and sound patterns, and units of meaning and their arrangements. May not be used to satisfy the College of Humanities and Sciences requirement in English. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 450/ENGL 450 Modern Grammar

Semester course; 3 lecture hours. 3 credits. Study of modern English grammar and usage with some attention to linguistic theory. Recommended for teachers at all levels. May not be used to satisfy the College of Humanities and Sciences requirement in literature. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 451/ENGL 451 History of the English Language

Semester course; 3 lecture hours. 3 credits. The historical development of the English language; etymology, morphology, orthography and semantics. May not be used to satisfy the College of Humanities and Sciences requirement in English. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 452/WMNS 452/ENGL 452 Language and Gender

Semester course; 3 lecture hours. 3 credits. A study of relationships between gender and language by focusing on such issues as differences between the ways women and men use language, relationships between language and power and ways in which language reflects and reinforces cultural attitudes toward gender. May not be used to satisfy the College of Humanities and Sciences requirement in literature. For English majors, these courses (limit of six credits) may be counted as part of graduate or undergraduate degree, but not both.

LING 453/ENGL 453 Introduction to Modern Rhetoric

Semester course; 3 lecture hours. 3 credits. An introduction to the broad range of modern rhetorical theories, emphasizing their relationships and linguistics, literary criticism and the process of writing. May not be used to satisfy the College of Humanities and Sciences requirement in English.

LING 552/ENGL 552/TEDU 552 Teaching English as a Second Language

Semester course; 3 lecture hours. 3 credits. Provides students who plan to teach English to people whose

native language is not English with techniques used in teaching foreign languages. Contrastive analysis of morphology, phonology and syntax are used to isolate areas of difficulty in learning English.

Courses in language skills (LASK)

LASK 103/LING 103 Introduction to Languages

Semester course; 3 lecture hours. 3 credits. A course designed to help students understand how languages function through a survey and contrastive analysis of language systems, with attention to the sociocultural, psychological and historical aspects of languages. (Completion of this course does not qualify a student to take the 200 level of a language without passing a language placement test.)

LASK 203 Classical Elements in the English Language

Semester course; 3 lecture hours. 3 credits. Development of English vocabulary through a study of Greek and Latin elements in English: derivatives, roots and loan words. Some emphasis on the special vocabularies of the sciences.

Environmental studies

For information about these programs, see the “VCU Life Sciences” chapter of this bulletin.

Forensic Science Program

William B. Eggleston

Director and Associate Professor (1993)
B.S. 1982 Duke University
Ph.D. 1990 University of Wisconsin, Madison

Dorothy E. Fillmore

Coordinator (1986)
B.A. 1977 St. Andrews Presbyterian College
M.A. 1984 Virginia Commonwealth University

The major in forensic science leads to a Bachelor of Science degree and is for students who plan a career or graduate study in the forensic sciences. This specialization features a prescribed curriculum with academic emphasis in biology, chemistry and criminal justice.

Forensic Science Program requirements

The Forensic Science Program requires a total of 120 credits with 47 of core program credits. In addition, students in the Forensic Science Program must receive at least a “C” in specified courses in order to be able to continue in the program and must complete the general education requirements for the Bachelor of Science degree in the College

of Humanities and Sciences. (Refer to “General Education” section of the “College of Humanities and Sciences” chapter of this bulletin.)

The core program courses are distributed as follows:

- 13 credits in biology (BIOL 151-152, BIOZ 151L-152L, BIOL 218, BIOL 300)
- 21 credits in chemistry (CHEM 101-102, CHEZ/FRSZ 101L-102L, CHEM 301-302, CHEZ 301L-302L, CHEM/BIOC 403)
- 13 credits in forensic science (FRSC 101, FRSC 201, FRSC 309, FRSC 350, FRSZ 350L, FRSC 375)

Students also must pass the Computer Proficiency Assessment and complete LFSC 101 Introduction to the Life Sciences, MATH 200 Calculus with Analytical Geometry (depending on the results of the Mathematical Placement Test, students either may be placed in a lower-level mathematics course first or may be exempt from MATH 200), PHYS 201-202 General Physics I, II, and STAT 210 Basic Practice of Statistics.

The Forensic Science Program provides students with fundamental learning in forensic laboratory analyses and crime scene investigation. The program offers two tracks — forensic chemistry and forensic biology. Students will select one of the two tracks prior to the second semester of their sophomore year. The forensic chemistry track requires an additional 14 credits in chemistry and forensic science beyond the core requirements; the forensic biology track requires an additional 13 credits in biology and forensic science courses beyond the core requirements.

Forensic chemistry track requirements

This track is offered for those students who are interested in graduate studies or careers in the toxicology and chemistry sections of forensic laboratories. Students also will be prepared for work in private analytical laboratories.

In addition to the core courses, students in this track will be required to complete CHEM 305 Physical Chemistry, CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory, CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry, and a 300-, 400- or 500-level forensic science elective.

The student completing the forensic chemistry track will be eligible for a minor in chemistry. All required 300-level chemistry courses must be taken at VCU in order to achieve the chemistry minor. In addition, a cumulative 2.0 GPA in VCU chemistry courses in the minor is required (transfer and VCU).

The required courses and their recommended sequence are listed below. Students must receive at least a "C" grade in those courses marked with an asterisk (*) in order to continue in the program. Students also must receive a "C" grade or better in CHEM 101 to enroll in CHEM 102 and receive a "C" grade or better in CHEM 301 to enroll in CHEM 302. Note: Some courses may fulfill both general education and forensic science curriculum requirements.

Freshman year

CHEM 101-102 General Chemistry I-II*
CHEZ/FRSZ 101L-102L General Chemistry Laboratory I-II*
Pass the Computer Proficiency Assessment
ENGL 101 Writing and Rhetoric Workshop I
FRSC 101 Forensic Science I
LFSC 101 Introduction to Life Sciences
MATH 200 Calculus with Analytical Geometry
STAT 210 Basic Practice of Statistics
General education requirements

Sophomore year

BIOL 151-152 Introduction to Biological Science I-II*
BIOZ 151L-152L Introduction to Biological Science Laboratory I-II*
CHEM 309, CHEZ 309L Quantitative Analysis and Laboratory
ENGL 200 Writing and Rhetoric Workshop II
FRSC 201 Forensic Science II
PHYS 201-202 General Physics I*-II
General education requirements

Junior year

BIOL 218 Cell Biology
BIOL 300 Biotechniques Laboratory
CHEM 301*-302 Organic Chemistry I-II
CHEZ 301L-302L Organic Chemistry Laboratory I-II
FRSC 350 Forensic Laboratory Principles and Practice
FRSZ 350L Laboratory in Forensic Principles and Practice
FRSC 375 Forensic Evidence, Law and Criminal Procedure
General education requirements

Senior year

CHEM 305 Physical Chemistry for the Life Sciences
CHEM 401 Applications of Instrumental Techniques in Organic and Forensic Chemistry
CHEM/BIOC 403 Biochemistry
FRSC 309 Crime Scene Search and Recovery Techniques
FRSC 300-, 400- or 500-level forensic science elective
General education requirements

Electives

Depending on the general education credits required, students may take general elective credits to reach the required 120 credit total.

Forensic biology track requirements

The forensic biology track is well suited for students interested in careers in the forensic biology section of forensic laboratories. Students also will be prepared for work in molecular biology laboratories in both the public and private sectors.

In addition to the core courses, students in this track will be required to complete BIOL 310 Genetics, FRSC/BIOL 438 and FRSZ/BIOZ 438L Forensic Molecular Biology and Laboratory, a 300-, 400- or 500-level natural science elective, and a 300-, 400- or 500-level forensic science elective. See adviser for suggestions.

The student completing the forensic biology track will be eligible for a minor in chemistry. All required 300-level chemistry courses must be taken at VCU in order to achieve the chemistry minor. A cumulative 2.0 GPA in the minor is required (transfer and VCU). In addition, a cumulative 2.0 GPA in VCU chemistry courses applied toward the minor is required.

The required courses and their recommended sequence are listed below. Students must receive at least a "C" grade in those courses marked with an asterisk (*) in order to continue in the program. Students also must receive a "C" grade or better in CHEM 101 to enroll in CHEM 102 and receive a "C" grade or better in CHEM 301 to enroll in CHEM 302. Note: Some courses may fulfill both general education and forensic science curriculum requirements.

Freshman year

CHEM 101-102 General Chemistry I-II*
CHEZ/FRSZ 101L-102L General Chemistry Laboratory I-II*
Pass the Computer Proficiency Assessment
ENGL 101 Writing and Rhetoric Workshop I
FRSC 101 Forensic Science I
LFSC 101 Introduction to Life Sciences
MATH 200 Calculus with Analytical Geometry
STAT 210 Basic Practices of Statistics
General education requirements

Sophomore year

BIOL 151-152 Introduction to Biological Science I-II*
BIOZ 151L-152L Introduction to Biological Science Laboratory I-II*
ENGL 200 Writing and Rhetoric Workshop II
FRSC 201 Forensic Science II

PHYS 201-202 General Physics I*-II
General education requirements

Junior year

BIOL 218 Cell Biology
BIOL 300 Biotechniques Laboratory
CHEM 301-302 Organic Chemistry I-II
CHEZ 301L-302L Organic Chemistry Laboratory I-II
FRSC 309 Crime Scene Search and Recovery Techniques
FRSC 350 Forensic Laboratory Principles and Practice
FRSZ 350L Laboratory in Forensic Principles and Practice
FRSC 375 Forensic Evidence, Law and Criminal Procedure
General education requirements

Senior year

BIOL 310 Genetics
CHEM/BIOC 403 Biochemistry
FRSC/BIOL 438 Forensic Molecular Biology
FRSZ/BIOZ 438L Forensic Molecular Biology Laboratory
FRSC 300-, 400- or 500-level forensic science elective
300- or 400-level natural science elective
General education requirements

Electives

Depending on the general education credits required, students may take general elective credits to reach the required 120 credit total.

Courses in forensic science (FRSC)

FRSC 101 Forensic Science I

Semester course; 1 lecture hour. 1 credit. Introduction and broad overview of forensic science. Emphasis on the application of biological sciences to legal investigations involving human death.

FRSZ 101L/CHEZ 101L General Chemistry Laboratory I

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 101. Experimental work correlated with CHEM 101 with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

FRSZ 102L/CHEZ 102L General Chemistry Laboratory II

Semester course; 1 lecture and 2 laboratory hours. 1 credit. Pre- or corequisite: CHEM 102. Prerequisite: CHEZ/FRSZ 101L. Experimental work includes qualitative analysis with selected forensic science applications. Each student is charged for breakage incurred. Approved safety glasses are required. Failure to check out of laboratory, upon withdrawal or for other reasons, will incur a charge billed from the Student Accounting Department.

FRSC 201 Forensic Science II

Semester course; 1 lecture hour. 1 credit. Prerequisite: FRSC 101. Provides a definitive understanding of the role of the forensic science laboratory and the forensic laboratory analyst in the legal system. Focus is on non-biological evidence, such as firearms and toolmarks.

FRSC 309 Crime Scene Search and Recovery Techniques

Semester course; 3 lecture/laboratory hours. 3 credits. Provides basic knowledge of proper crime scene protocol and evidence processing techniques including the processes for documenting, collecting and preserving physical evidence.

FRSC 310/ANTH 310 Forensic Anthropology

Semester course; 3 lecture and 1 laboratory hours. 3 credits. A comprehensive overview of forensic anthropology, including its development and the theory and methodology on which it is based.

FRSC 314/BIOL 314 Introduction to Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 151-152, CHEM 102 or equivalent. The fundamentals, principles, techniques and applications of cell biology and genetics. Emphasis is on nucleic acids and proteins. Not applicable for credit toward the B.S. degree in biology.

FRSC 350 Forensic Laboratory Principles and Practice

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: CHEM 301, CHEZ 301L and BIOL 218. Covers the theory, concepts and practices used in the analysis of physical evidence by modern crime laboratories. Introduces the ethical and quality assurance issues of crucial importance in crime laboratories and how to present pertinent information in written and oral forms.

FRSZ 350L Laboratory in Forensic Principles and Practice

Semester course; 4 laboratory hours. 2 credits. Pre- or corequisite: FRSC 350. Open only to forensic science majors. Experimental work associated with FRSC 350. Application of forensic science laboratory techniques to the analysis of fingerprints, unknown chemicals, physical evidence and biological evidence.

FRSC 375 Forensic Evidence, Law and Criminal Procedure

Semester course; 3 lecture hours. 3 credits. The law of criminal procedure and rules of evidence as applied to forensic science. Issues of scientific versus legal burdens of proof, legal terminology and trial procedure will be presented.

FRSC 391 Topics in Forensic Science

Semester course; variable lecture hours. 1-3 credits. Maximum total of six credits for all forensic science topics courses may be applied to the major. Prerequisites: BIOL 151, 152, BIOZ 151L, 152L, CHEM 101, 102, CHEZ 101L, 102L, and FRSC 309 and 350. A study in selected topics in forensic science. See the Schedule of Classes for specific topic(s) and additional prerequisites.

FRSZ 391L Topics in Forensic Science Laboratory

Semester course; variable laboratory hours. 1-3 credits. Maximum total of six credits for all forensic science topics courses may be applied to the major. Prerequisites: BIOL 151, 152, BIOZ 151L, 152L, CHEM 101, 102, CHEZ 101L, 102L, and FRSC 309 and 350. Laboratory investigations in a selected topic in forensic science. See the Schedule of Classes for specific topic(s) and additional prerequisites.

FRSC 438/BIOL 438 Forensic Molecular Biology

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 310 Genetics or equivalent; CHEM 302 Organic Chemistry II and CHEZ 302L Organic Chemistry II Laboratory. Provides an understanding of various DNA testing methodologies and their applicability to forensic science. Students will learn the skills necessary to evaluate the applicability of each method as it applies to particular case situations. Not applicable for credit toward the B.S. degree in biology.

FRSZ 438L/BIOZ 438L Forensic Molecular Biology Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: BIOL/FRSC 438. Provides comprehensive coverage of the various types of DNA testing currently used in forensic science laboratories. Students will have hands-on experience with the analytical equipment employed in forensic science laboratories. Students also will explore and practice expert witness testimony in a mock trial setting with crime lab analysts as the judge and jury. Not applicable for credit toward the B.S. degree in biology.

FRSC 445/PATH 445 Forensic Toxicology

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L; CHEM 301-302 and CHEZ 301L. Provides a comprehensive overview of the basic principles of toxicology and the practical aspects of forensic toxicology. Students will learn to define the toxic agents most commonly resulting in legal problems in U.S. society and also the process by which the U.S. judicial system is aided by scientific investigation.

FRSC 492 Forensic Science Independent Study

Semester course; variable credit, 1-3 credit hours. Maximum total for all independent study is six credits. Open only to forensic science majors with junior or senior standing with a GPA of 2.5 or above. Prerequisites: BIOL 151-152, CHEM 101-102, FRSC 101 or 201. A determination of the amount of credit and the written permission of both the instructor and the program director must be procured prior to registration for the course.

FRSC 493 Forensic Science Internship

Semester course; 3 credits. May be taken only once. Prerequisites: Open only to forensic science majors with senior standing, 27 forensic science core program credits and at least a 2.75 GPA. An application is required in advance of admission with permission of the internship coordinator. Through placement in an approved organization, the student will obtain a broader, more practical knowledge of forensic science and its applications. Written progress and final reports are required. Graded as pass/fail.

Geography

A major concentration and a minor in geography are offered by the School of World Studies.

Department of History

Joseph W. Bendersky

Professor and Department Chair (1976)
B.A. 1969 City College of New York
M.A. 1970 Michigan State University
Ph.D. 1975 Michigan State University

The history curriculum exposes students to a multidimensional analysis of the human past. Knowledge gained through such analysis not only has the intrinsic appeal of any disciplined intellectual inquiry, but also constitutes an indispensable basis for active citizenship and for critical thinking about the society in which the student lives.

Historical training at the undergraduate level leads to personal and social awareness within the rich tradition of the liberal arts. It also provides students an ideal preparation for a wide range of careers and further professional study.

The Department of History offers the Bachelor of Arts in History.

Students in the program can take advantage of a wide range of courses with thematic, topical, national or chronological emphases to fulfill requirements and electives.

Master of Arts in History

For information about this program, see the Graduate and Professional Programs Bulletin.

Degree requirements – Bachelor of Arts in History

The Bachelor of Arts curriculum in history requires a minimum of 120 credits, with at least 36 of those credits in history. In addition to the undergraduate requirements and those of the college, the student majoring in history must complete the following:

1. twelve credits in 100-level history area survey courses (six credits may be applied to the College of Humanities and Sciences general education requirements)
2. HIST 300 Introduction to Historical Study with a "C" grade or better prior to enrolling in more than six credits of 300- or 400-level history courses
3. twenty-four credits in history courses at the 300-400 level

4. three credits from among HIST 461, 462, 483, 485, 486, 490, 493
5. at least six credits from each of three areas:
 - a) Europe
 - b) United States
 - c) Africa, Asia or Latin America

Collateral requirements

In addition to the history courses required for the Bachelor of Arts degree, students must complete the study of a foreign language through the intermediate level (202 or 205) by course or placement.

Along with completion of general education requirements of the College of Humanities and Sciences for the Bachelor of Arts degree and undergraduate requirements, students may choose approved electives from any courses offered by the College of Humanities and Sciences and the schools of the Arts, Business and Education.

Students should consult with their advisers each semester to design a program which meets these requirements and suits their interests and career objectives.

Honors in history

To earn a Bachelor of Arts degree with honors in history the students must have a minimum cumulative GPA of 3.0 or a 3.0 average for their junior year, with at least a 3.3 GPA in history courses. Students must also have completed an honors paper in history. See the department adviser or chair for information about the paper requirements. An honors in history notation will appear on the transcripts of students who complete these requirements.

Minor in history

The minor in history consists of 18 credits in history, 12 of which must be at the upper level (300-400). At least one three-credit course must be taken in three of the following regions: Africa, North America, Asia, Europe, Latin America, Middle East.

Extended Teacher Preparation Program

History majors interested in teaching early, middle, secondary or special education can enroll in an Extended Teacher Prepa-

ration Program that results in the simultaneous awarding of a Bachelor of Arts degree in history and a Master of Arts degree in teaching. For more information about this program jointly administered by the School of Education and the College of Humanities and Sciences, contact the School of Education's Office of Student Services.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in history. A full description of this program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in history (HIST)

HIST 101, 102 Survey of European History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of European civilization from the ancient world to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Europe's place in the world. First semester: to 16th century. Second semester: 16th century to the present.

HIST 103, 104 Survey of American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of American civilization from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined America's place in the world. First semester: to Reconstruction. Second semester: reconstruction to present.

HIST 105, 106/AFAM 105, 106 Survey of African History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of African civilizations from prehistory to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Africa's place in the world. First semester: to 1800. Second semester: 1800 to the present.

HIST 107, 108 Survey of East Asian Civilizations

Semester courses; 3 lecture hours. 3, 3 credits. A survey of East Asian civilizations (China and Japan) from prehistory to the present, emphasizing the events, ideas and institutions that shaped, influenced and defined East Asia's place in the world. First semester: to the 14th century. Second semester: from the 14th century to the present.

HIST 109, 110 Survey of Latin American History

Semester courses; 3 lecture hours. 3, 3 credits. A survey of Latin American civilization from its early civilizations to the present, emphasizing the events, ideas and institutions that have shaped, influenced and defined Latin America's place in the world. First semester: to 1824. Second semester: 1824 to the present.

HIST 191 Topics in History

Semester course; variable; 1-3 credits per semester. Maximum total of six credits. The study of a selected topic or topics in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 300 Introduction to Historical Study

Semester course; 3 lecture hours. 3 credits. History majors must complete HIST 300 with at least a "C" grade prior to enrolling in more than six credits of 300- or 400-level history courses. This introduction to the historical discipline is required of all history majors. It is designed to enhance basic research, writing and study skills in order to increase student appreciation of, and performance in, the advanced courses within the history major.

HIST 301, 302/RELS 315, 316 The Ancient Near East

Semester courses; 3 lecture hours. 3, 3 credits. A study of the ancient Near Eastern civilizations of Mesopotamia, Egypt, Anatolia and Syria-Palestine, from the preliterary period to that of the Archaemenid Empire of the Persians. First semester: preliterary period to the end of Kassite rule in Babylonia (c. 1160 B.C.). Second semester: the rise and fall of the great Neo-Assyrian, Neo-Babylonian, Hebrew and Persian Empires (c. 331 B.C.).

HIST 303 Greek Civilization

Semester course; 3 lecture hours. 3 credits. A study of the unique cultural heritage of Greece and the historical patterns that rose from it, from the Heroic Age to the urban worlds after Alexander, 1400 B.C.-146 B.C.

HIST 304 Roman Civilization

Semester course; 3 lecture hours. 3 credits. A study of Roman history as it derived from Roman cultural institutions, from the Etruscan period through the conflict of the pagan and Christian worlds and advent of the barbarians, 753 B.C.-A.D. 454.

HIST 305 Introduction to Greek Archaeology

Semester course; 3 lecture hours. 3 credits. Selected centers of civilization in prehistoric, classical and Hellenistic Greece: their rise, destruction or renewal by urban planning; the history of classical archaeology, its growth and impact on modern European art. Emphasis is on the living context of mature and complex peoples: Crete, Mycenaean, Classical and Hellenistic Greece.

HIST 306 The Early Middle Ages

Semester course; 3 lecture hours. 3 credits. A topical, thematic, integrative and problems approach to the emergence of a distinctive European community during the period frequently alluded to as the "Dark Ages."

HIST 307/RELS 308 The High Middle Ages

Semester course; 3 lecture hours. 3 credits. A detailed historical analysis of the Gregorian Revolution, the Crusades, the 12th-century Renaissance, the Thomistic World and the death of medieval civilization.

HIST 308 Europe in Renaissance

Semester course; 3 lecture hours. 3 credits. Examination of the political, economic, social, cultural and religious dimensions of the Italian and Northern European renaissances.

HIST 309/RELS 309 The Reformation

Semester course; 3 lecture hours. 3 credits. A careful and intensive inquiry into the spiritual and material forces and people involved in the reformation of Christendom in 16th-century Europe.

HIST 310 Europe in Absolutism and Enlightenment, 1648-1815

Semester course; 3 lecture hours. 3 credits. Examines the political, social and economic orders of Old Regime Europe in the context of their increasing contradictions;

introduces the cultural and intellectual forces that helped challenge that regime; culminates in the French Revolution and Napoleon.

HIST 311 The Zenith of European Power, 1815-1914

Semester course; 3 lecture hours. 3 credits. A study of the period in which the nations of Europe reached their height of world power between the reconstruction of Europe after the Napoleonic Wars and the eve of World War I. Topics include the rise of nationalism, liberalism and socialism; the spread of capitalism and industrial society; the beginnings of mass politics; the new imperialism; the diplomatic revolution in the European state system before World War I.

HIST 312 The Age of Total War: Europe, 1914-1945

Semester course; 3 lecture hours. 3 credits. A study of the transformation of European society precipitated by World War I and World War II. Emphasis is placed on the origin, nature, and repercussions of total war; the crisis of democracy and the rise of modern dictatorships; changes in political, economic and social institutions; and the decline of European power.

HIST 313 Post-War Europe, 1945 to the Present

Semester course; 3 lecture hours. 3 credits. An examination of Europe's social, economic and political recovery after World War II and of the transformation of Europe from the center toward the periphery of world power.

HIST 315, 316 History of France

Semester courses; 3 lecture hours. 3, 3 credits. First semester: history of France from Gallo-Roman times through the French Revolution and the Napoleonic era. Second semester: from 1815 to the present.

HIST 317, 318 History of Germany

Semester courses; 3 lecture hours. 3, 3 credits. First semester: the rise of Prussia, decline of the Holy Roman Empire and the German Confederation up to 1870. Second semester: Bismarck's Empire, the World Wars, Nazism and post-1945 Germany.

HIST 319, 320 History of England

Semester courses; 3 lecture hours. 3, 3 credits. Traces the rise of England to world hegemony and the causes of its decline as a world power. First semester: Tudor Revolution in government, Reformation, English civil wars and Restoration. Second semester: Whig oligarchy, Industrial Revolution, Victorianism, impact of world wars, problems of Empire.

HIST 321, 322 History of Russia

Semester courses; 3 lecture hours. 3, 3 credits. Russian history from its origins to the present, emphasizing the development of political and social institutions and Russia's unique position between Europe and Asia. First semester: origins to 1861. Second semester: 1861 to the present.

HIST 323 History of Spain and Portugal

Semester course; 3 lecture hours. 3 credits. A survey of the history of the Iberian peninsula from ancient times to the present, with an emphasis on the distinctive culture and attitude toward life that developed south of the Pyrenees.

HIST 324 The Holocaust

Semester course; 3 lecture hours. 3 credits. A multidisciplinary examination of the events leading to and culminating in the Nazi extermination of six million

Jews; the historical settings of European Jewry and of German fascism; the role of traditional anti-Semitism; the psychology of aggressor and victim; the Holocaust in art and literature and the moral implications for today.

HIST 325, 326/RELS 318, 319 History of the Jewish People

Semester courses; 3 lecture hours. 3, 3 credits. A study of the Jewish people from the destruction of the Second Temple in A.D. 70 to the present. First semester: Judea in Roman times, the Diaspora in Islam and in Europe, social and cultural trends and the impact of the Emancipation. Second semester: the rise of the American Jewish community, the impact of modernism and growth of Reform, the beginnings and growth of Zionism, restoration in Palestine, the Holocaust, the creation of Israel and the relations of Israel and World Jewry.

HIST 327/RELS 327 History of Christianity

Semester course; 3 lecture hours. 3 credits. A historical and theological examination of Christianity from its origin to the present. Emphasis is placed upon an understanding of leading events, ideas, movements and persons in their historical settings.

HIST 328 Modern Middle East

Semester course; 3 lecture hours. 3 credits. Analysis of the history, problems, and prospects of the nations and peoples of the Middle East with emphasis on developments since the Balfour Declaration of 1917.

HIST 329, 330 European Social History

Semester courses; 3 lecture hours. 3, 3 credits. Examines the institutions and structures of European society in the context of their changing interrelationships with politics, economics, ideas and culture throughout European history. First semester: pre-Industrial Europe; second semester: the Industrial Age.

HIST 331 Nazi Germany

Semester course; 3 lecture hours. 3 credits. The origin and nature of Hitler's Third Reich. A study of the failure of the Weimar Republic; genesis of the Nazi racial ideology and party structure; the Nazi political, social and cultural order after the seizure of power; Nazi foreign policy leading to war and genocide; and an analysis of the personality of Hitler.

HIST 332 History in Film

Semester course; 3 lecture hours. 3 credits. An examination of the uses and misuses of historical events and personalities in film. Lectures and readings are used to critically analyze films dealing with biographies, events and propaganda. May be repeated for a maximum of six credits with different topics.

HIST 333/ECON 419 History of Economic Thought

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211. A survey of the ideas of major economic contributors to modern economic thought. Theories of value, growth and distribution from the 18th through the 20th centuries will be presented.

HIST 334 Comparative History of Revolutions

Semester course; 3 lecture hours. 3 credits. A historical investigation of the causes, events, results and interpretation of revolution, focusing upon such subjects as revolutionary change in the ancient and medieval worlds, and the revolutions of the modern age in England, France, Mexico, Russia, China and Cuba. Emphasis is on historical comparisons and the specific revolutions examined may vary.

HIST 336 Modern European Intellectual History

Semester course; 3 lecture hours. 3 credits. An investigation of the main currents of European thought since 1750 which have shaped the contemporary mind. Emphasis on the interconnections between ideas and society placed in their historical contexts.

HIST 337 The Origins of Modernism, 1880-1930

Semester course; 3 lecture hours. 3 credits. An investigation of the interconnections between social, intellectual, and artistic change in Europe in the crucial period 1880-1930. Focus is placed on such major figures as Nietzsche, Freud, Einstein, Picasso, Duchamp and Stravinsky in an attempt to locate the origins of contemporary artistic and intellectual experience.

HIST 338 History of Socialism

Semester course; 3 lecture hours. 3 credits. An examination of the roots of socialism in the cultural and religious tradition of the West, its development during Europe's industrialization, its present status and the alternative it presents to capitalism.

HIST 339, 340/WMNS 339, 340 History of Women in Europe

Semester courses; 3 lecture hours. 3, 3 credits. A history of European women from the Greeks to the contemporary world. A major focus of both courses will be primary sources by and about women. First semester: from antiquity to the Enlightenment. Second semester: from the French Revolution to the present.

HIST 341/WMNS 341 American Women's History

Semester course; 3 lecture hours. 3 credits. Through reading, lecture and discussion, this course analyzes historical changes in the social, cultural, political and economic position of women in America over the past three centuries. It includes such topics as the differences and similarities of women's experiences across lines of class, race and ethnicity, the struggle for suffrage and social reform, shifting gender roles and changing employment opportunities.

HIST 342 Colonial America, 1585-1763

Semester course; 3 lecture hours. 3 credits. An examination of the development of the 13 original colonies; the establishment and growth of society, politics and the economy; and modification in the relationship between the provinces and Great Britain.

HIST 343 Two American Revolutions, 1763-1800

Semester course; 3 lecture hours. 3 credits. An examination of the late 18th-century revolutions which molded the American political system - the revolution of colonial Englishmen against Great Britain and the revolution of the nationalists against the government established by the American Revolution, which produced and firmly established the United States Constitution.

HIST 344 Ante-bellum America: 1800-1860

Semester course; 3 lecture hours. 3 credits. Federalist era to 1860. A study of the events, forces, and personalities that shaped Ante-bellum America and led to Southern secession and Civil War.

HIST 345 Civil War and Reconstruction

Semester course; 3 lecture hours. 3 credits. A study of the major events, forces, personalities and significance of the Civil War and Reconstruction eras.

HIST 346 The Emergence of Modern America, 1877-1914

Semester course; 3 lecture hours. 3 credits. An examination of the major political, legal, social, and economic trends in the United States at this time, focusing on the industrialization of the nation and the resulting effects it had on such diverse matters as urbanization, immigration, economic distribution and cultural affairs, culminating in the Progressive reform movement.

HIST 347, 348 20th-century U.S. History

Semester courses; 3 lecture hours. 3, 3 credits. A study of the political, social, economic, and cultural history of the United States in the 20th century, with emphasis on how the American people have responded to reform, war, prosperity, depression, international status and changing relationships within government and society. First semester: to World War II. Second semester: since World War II.

HIST 349, 350 American Military History

Semester courses; 3 lecture hours. 3, 3 credits. Analysis of the evolution, status, and conduct of the armed forces of the United States. Emphasis will be placed on the changing nature of American military thought and institutions, their performance in peace and war and their relationship to civilian authority. First semester: to 1900. Second semester: 1900 to the present.

HIST 351, 352 History of the South

Semester courses; 3 lecture hours. 3, 3 credits. A regional history placing particular emphasis upon the distinctive culture and problems of the South and its significance in the history of the United States. First semester: Old South, from colonial period to 1861. Second semester: New South, from 1865 to the present.

HIST 355 History of Virginia

Semester course; 3 lecture hours. 3 credits. The course focuses on the central themes, events and personalities of the state's history from 1607 to the present.

HIST 357, 358 American Social History

Semester courses; 3 lecture hours. 3, 3 credits. The social life of Americans is examined in all periods of their history, focusing on the changing structure and functions of social institutions and thought. First semester: to 1876. Second semester: 1877 to the present.

HIST 361, 362/AFAM 361, 362 Americans from Africa

Semester courses; 3 lecture hours. 3, 3 credits. A study of the history and culture of blacks in the United States, designed to analyze some of the most important aspects of black life and the attitudes of the dominant society within which blacks lived. The second semester emphasizes the changing status, expectations and ideologies of black Americans in the 20th century. First semester: to 1877. Second semester: since 1877.

HIST 363 History of the American Urban Experience

Semester course; 3 lecture hours. 3 credits. The evolution of colonial towns into industrial metropolises will be examined, placing emphasis on how this change determined contemporary conditions in American cities.

HIST 365, 366 American Intellectual History

Semester courses; 3 lecture hours. 3, 3 credits. The development of American thought and attitudes, with emphasis on trends in social and religious ideas, the rise

of educational and cultural institutions, and expressions in literature and the arts. First semester: Colonial period to 1860. Second semester: 1860 to the present.

HIST 369, 370 American Constitutional and Legal Development

Semester courses; 3 lecture hours. 3, 3 credits. An analysis of the development of American constitutionalism and of concomitant legal developments, emphasizing judicial review, the relationship between the Constitution and modern industrialized society, and civil rights, as well as the growth of case law and the rise of the legal profession. First semester: to 1877; Second semester since 1877.

HIST 374 History of the American Frontier

Semester course; 3 lecture hours. 3 credits. A survey of the western movement in the United States from the time the first outposts were established to the end of the frontier in the 19th century. Particular attention to the influence of the frontier upon the American mind and ideals.

HIST 375, 376 American Diplomatic History

Semester courses; 3 lecture hours. 3, 3 credits. A study of the role of the United States in international relations. Emphasis is placed on institutional and theoretical development and continuity as well as the role of the individual. First semester: to 1900. Second semester: since 1900.

HIST 378 History of Central America

Semester course; 3 lecture hours. 3 credits. An exploration of the history of the region beginning with pre-Hispanic Indian civilizations and continuing to the present. Topics to be studied include the Spanish conquest, the liberal-conservative struggle, U.S. gunboat diplomacy, the Sandinista Revolution, civil war in El Salvador, militarism in Guatemala and democracy in Costa Rica.

HIST 379 The History of Modern Japan

Semester course; 3 lecture hours. 3 credits. This course will offer a detailed examination of Japan's modern history, from the rise of Tokugawa rule in 1600 to the end of World War II. A general overview of Japan's traditional society will give way to a historical analysis of the major social, cultural, political and intellectual changes that occurred in Japan throughout this time period.

HIST 381 The History of Early Modern China, 1500 to 1800

Semester courses; 3 lecture hours. 3 credits. Examines the last 150 years of the Ming Dynasty (1368-1644) and the first 150 years of the Qing Dynasty (1644-1912). General overview of China's traditional political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China between 1500 and 1800. In addition, students will be introduced to such concepts and issues as empire building, ethnicity and nationalism to prepare for the study of the 19th- and 20th-century China.

HIST 382 The History of Modern China, 1800 to the Present

Semester course; 3 lecture hours. 3 credits. Examines China's modern history beginning at the height of the Qing Dynasty (1644-1912) in 1800. A general overview of China's traditional political economy is followed by a historical analysis of the major social, cultural, political, intellectual and economic changes that occurred in China from 1800 to the present. This course is divided

into three sections: the first examines the factors leading to the collapse of China's last dynasty in 1912; the second focuses on the revolutionary changes taking place in China during the first half of the 20th century (from 1912 to 1949); and the final section looks at Communist China since 1949.

HIST 383 Ancient Egypt

Semester course; 3 lecture hours. 3 credits. A general survey of the history and culture of ancient Egypt from the Predynastic period through the age of the New Kingdom. In addition to the historical reconstruction, emphasis is placed on the art, literature and religion of each of the major periods.

HIST 384 Latin America and World Affairs

Semester course; 3 lecture hours. 3 credits. A survey of the relation of Latin America since the 16th century to major world developments which have occurred and in which Latin America was involved.

HIST 385 History of Mexico

Semester course; 3 lecture hours. 3 credits. A study of Mexico and its culture, including early Indian civilizations, Spanish conquest, colonial period, independence, struggle for reform, revolution and development as a modern state.

HIST 386 History of Brazil

Semester course; 3 lecture hours. 3 credits. A survey of the development of Brazilian culture and institutions from the Portuguese occupation of eastern South America through the Colonial period, independent empire and the republic to the present time.

HIST 387/AFAM 387 History of West Africa

Semester course; 3 lecture hours. 3 credits. A study of the transformation of West African societies from early times to the present, with emphasis on the rise of states and empires, the introduction, spread and impact of Islam, the Atlantic Slave trade and its effects, colonialism, African resistance and nationalism, and developments since independence.

HIST 388/AFAM 388 Africa: Social, Cultural and Economic History

Semester course; 3 lecture hours. 3 credits. A study of economic, social and cultural developments in Africa from the beginning of the 19th century to the present, with emphasis on agricultural and industrial development, trade, Africa's involvement in the world economy, changes in labor systems, racial dominance, African initiatives and resistance, religion and social evolution and Africa in world affairs.

HIST 389/AFAM 389 History of Southern Africa

Semester course; 3 lecture hours. 3 credits. A study of the history and culture of the peoples of southern Africa. Deals with the areas that presently are the Republic of South Africa, Lesotho, Swaziland, Botswana, Namibia and Zimbabwe. Emphasizes the interaction among the various communities and ethnolinguistic groups in southern Africa.

HIST 390/AFAM 390/WMNS 390 Africa and the Americas: Slavery, Gender and Race

Semester course; 3 lecture hours. 3 credits. An examination of various aspects of slavery in Africa primarily, and selected parts of the African Diaspora including the United States, Canada and the Caribbean, with emphasis on African conditions of servility, the Atlantic slave trade and chattel slavery. The role gender and race played in slavery will be given particular attention.

HIST 391 Topics in History

Semester course; 1, 2, or 3 lecture hours. Variable credit. May be repeated with different topics for a maximum of nine credits. An in-depth study of a selected topic in history. See the Schedule of Classes for specific topics to be offered each semester.

HIST 392/AFAM 392 The Caribbean to 1838

Semester course; 3 lecture hours. 3 credits. An exploration of changes in the structure of Caribbean society from the late 15th century to 1838, with emphasis on the development of plantation slavery, social stratification, race, slave resistance, the Haitian Revolution, African cultural patterns and abolition.

HIST 393/AFAM 393 Akhenaten to Cleopatra

Semester course; 3 lecture hours. 3 credits. A survey of Egyptian history from the period of the Empire (New Kingdom, c. 1570 B.C.) through the Ptolemaic Age of Cleopatra (c. 30 B.C.). Particular areas of concentration will include the Amarna Period of Akhenaten and various aspects of Egyptian daily life.

HIST 394/ANTH 394 Historical Archaeology

Semester course; 3 lecture hours. 3 credits. Prerequisites: ANTH 105 and any history course. A review of historical archaeology, recognizing its contemporary emphasis on the spread of European cultures across the globe beginning in the 15th century. Methods and findings of archaeological research from the United States, Europe and Africa will be covered with special emphasis on the study of documents and artifacts related to the emergence and present state of the modern world. Students will participate in field research.

HIST 461-462 Archival and Historical Administration

Continuous course; 3 lecture and 3 workshop hours. 3-3 credits. First semester: an examination of the development of archival administration with emphasis on modern techniques and practices of archival and historical administration. Second semester: workshop in which each student will receive on-the-job training in various phases of archival administration.

HIST 483 Museum Methods

Semester course; 3 lecture hours. 3 credits. Practical presentation of techniques of working museums, presented in conjunction with local or regional museums.

HIST 485 Seminar in Historiography

Semester course; 3 lecture hours. 3 credits. May be repeated for maximum of six credits with different topics. Introduction to questions in historiography, meaning, methodology and interpretation in the teaching and writing of history.

HIST 486 Seminar in Historical Methodology

Semester course; 3 lecture hours. 3 credits. In a seminar setting involving reading, discussion and writing, students will explore the canons, practices, and limitations of one or more historical methodologies. Since the emphasis may shift from semester to semester, interested students should contact the instructor listed in the current Schedule of Classes.

HIST 490 Seminar in History

Semester course; 3 lecture hours. 3 credits. Maximum nine credits. Research and analysis of a selected historical topic in a seminar setting. See the Schedule of Classes for each semester's offerings.

HIST 492 Independent Study

Semester course; variable; 2-4 credits per semester. Maximum total of six credits. Open generally to students of only junior and senior standing who have acquired 12 credits in the departmental disciplines. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course.

HIST 493 Internship

Semester course; variable; 2-4 credits per semester. Maximum total of six credits. Open generally to students of senior standing. Students receive credit for work on historical projects with approved agencies. Determination of the amount of credit and permission of departmental internship coordinator must be procured prior to registration for the course.

Courses in humanities and sciences (HUMS)

HUMS 291 Special Topics in the Humanities and Sciences

Semester course; 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Grade option: Pass/fail or normal letter grading. Option will be established by instructor.

HUMS 391 Special Topics in the Humanities and Sciences

Semester course; variable; 1-4 credits. May be repeated with different content. Specialized topics in the liberal arts and sciences designed to provide an overview of a topic not provided by an existing course or program. May be multidisciplinary. Grade option: Pass/fail or normal letter grading. Option will be established by instructor.

Courses in humanities and sciences interdisciplinary (HUSI)

HUSI 190 College Seminar

1 lecture hour. 1 credit. May be repeated once for credit. Open only to students who participate in these programs. A seminar designed for first-year programs coordinated through the office of the dean of the College of Humanities and Sciences. Designed to help students integrate general education courses.

HUSI 491 College Topics

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for maximum of six credits. Open primarily to seniors; others with permission of instructor. A discussion of complex issues that are of enduring value or of critical interest to society. The goals of the course are to (1) bring general principles from disciplinary or a variety of disciplinary contexts to bear on specific problems; (2) exercise critical thinking; (3) understand and integrate diverse perspectives; and (4) explore models of decision making, underlying assumptions and implications. See the Schedule of Classes for specific issues to be offered each semester.

Courses in life sciences (LFSC)

For life sciences course descriptions, refer to the "VCU Life Sciences" chapter in this bulletin.

Department of Mathematics and Applied Mathematics

Andrew M. Lewis

Associate Professor and Department Chair (1994)
B.A. 1967 Harvard University
Ph.D. 1993 University of California at Berkeley

The curriculum in mathematical sciences promotes understanding of the mathematical sciences and their structures, uses, and relationships to other disciplines. To this end, the scholarly growth of the faculty and students in the mathematical sciences is nurtured through study, research and a high standard of teaching. The curriculum provides a sound foundation for the student seeking to enter a career with a technological orientation or for the student who wishes to pursue graduate study in applied mathematics, mathematics, operations research, statistics, mathematics teaching in secondary schools or related fields.

A Bachelor of Science is offered jointly by the Department of Mathematics and Applied Mathematics and the Department of Statistical Sciences and Operations Research. In the Department of Mathematics and Applied Mathematics, students in the Bachelor of Science in Mathematical Sciences can choose from one of the following concentrations.

1. Mathematical sciences/applied mathematics concentrates on the analytical and computational techniques necessary to solve many of today's problems. These methods had been applied traditionally in such areas as chemistry and physics, but are now applied in many other areas.
2. Mathematical sciences/mathematics fosters the understanding of the power and the beauty of pure mathematics and its applications to various branches of knowledge.
3. Mathematical sciences/secondary teacher preparation prepares students for teaching mathematics in the secondary schools.

As an alternative to the above concentrations, students may design an individual plan of study with the help of their advisers.

Degree requirements – Bachelor of Science in Mathematical Sciences with a concentration in mathematics, applied mathematics or secondary mathematics teacher preparation

The B.S. in mathematical sciences requires a minimum of 120 credits with at least 41 of those credits in courses labeled CMSC, MATH or STAT. Along with the general education requirements of the College of Humanities and Sciences and the undergraduate requirements, students must take core courses and fulfill specific requirements for the degree.

Based on the results of the Mathematics Placement Test, students may be required to take MATH 151 Precalculus Mathematics. No more than one course in mathematics (MATH) at the 100 level can count for the general requirements toward the Bachelor of Science degree. Credit for 100-level mathematical sciences courses cannot be applied toward the mathematical sciences courses required for the major in mathematical sciences.

Mathematical sciences majors must complete the following requirements:

- A. Complete one of the following sequences:
 1. BIOL 151, 152 and BIOZ 151L, 152L
Introduction to Biological Science and Laboratory I, II
 2. CHEM 101-102 and CHEZ/FRSZ 101L, 102L
General Chemistry and Laboratory I-II
 3. PHYS 207, 208 University Physics I, II or PHYS 201-202 General Physics
- B. Complete another course, including laboratory, in the natural sciences from the list of courses approved for satisfying the general education requirements of the College of Humanities and Sciences. This course must be in the life sciences if the chemistry or physics sequence was selected in A above. It must be in the physical sciences if the biology sequence was selected in A above.
- C. Complete one other course in the natural sciences or complete a minor or second major offered outside the Department of Mathematics and Applied Mathematics.

Completion of the previously mentioned requirements will satisfy the College of Humanities and Sciences natural sciences general education requirements.

Mathematical sciences core. All students are required to take the following courses:
MATH 200-201 Calculus with Analytic Geometry
STAT 212 Concepts of Statistics
MATH 307 Multivariate Calculus
MATH 310 Linear Algebra

Concentrations. By completing the listed requirements, students may obtain a designation on their transcripts that their study has emphasized one of the following concentrations. Students may choose to meet the requirements of more than one concentration.

1. **B.S. in mathematical sciences/applied mathematics**
MATH 255 Introduction to Computational Mathematics
MATH 300 Introduction to Mathematical Reasoning
MATH 301 Differential Equations
MATH 490 Mathematical Expositions
MATH 512 Complex Analysis for Applications
MATH 517-518 Methods of Applied Mathematics
Six additional upper-level credits in mathematical sciences (MATH 302 Numerical Calculus, MATH 437 Applied Partial Differential Equations and MATH 511 Applied Linear Algebra are recommended)
2. **B.S. in mathematical sciences/mathematics**
MATH 255 Introduction to Computational Mathematics
MATH 300 Introduction to Mathematical Reasoning
MATH 490 Mathematical Expositions
MATH 501 Introduction to Abstract Algebra
MATH 507-508 Analysis I-II
MATH 509 General Topology I
Six additional upper-level credits in mathematical sciences
3. **B.S. in mathematical sciences/secondary mathematics teacher preparation**
MATH 255 Introduction to Computational Mathematics
MATH 300 Introduction to Mathematical Reasoning
MATH 327 Mathematical Modeling
MATH 490 Mathematical Expositions
MATH 504 Algebraic Structures and Functions
MATH 505 Modern Geometry
MATH 507 Analysis I
MATH 530 History of Mathematics
MATH 554 Using Technology in the Teaching of Mathematics

Students who meet the requirements for two of the concentrations with the mathematical sciences curriculum can receive a double major. To initiate a double major, students must obtain the appropriate form from the Office of Records and Registration.

With the approval of the departmental Undergraduate Credentials Committee and the adviser, students can design their own plan of study, which will result in a Bachelor of Science with a major in mathematical sciences. This student-planned curriculum must contain at least 24 credits in upper-level (300-500) mathematical sciences courses.

Minor requirements – general

A minimum GPA of 2.0 must be achieved in the minor, and credit for 100-level mathematical sciences courses cannot be applied to the minor. Students in the mathematical sciences majors cannot minor in a mathematical sciences program.

Minor in mathematical sciences

A minor in mathematical sciences consists of at least 18 credits offered by the Department of Mathematics and Applied Mathematics and the Department of Statistical Sciences and Operations Research, including a minimum of three credits of calculus and nine upper-level credits. Neither STAT 208, STAT 210 nor any 100-level course may be used to fulfill the required 18 credits.

Extended Teacher Preparation Program

Mathematical sciences majors interested in teaching careers in early, middle, secondary or special education can enroll in an Extended Teacher Education Program that results in the simultaneous awarding of a bachelor's degree in mathematical sciences and a master's degree in teaching. For more information about this jointly administered program, contact the School of Education's Office of Student Services.

Post-baccalaureate programs in mathematical sciences

For more information about these programs, refer to the Graduate and Professional Programs Bulletin.

Second baccalaureate degree

For students possessing a bachelor's degree and wishing to gain undergraduate preparation in an area of mathematical sciences, second baccalaureate degrees are offered through the department. For detailed information about these programs, refer to the

“Academic Regulations and General Degree Requirements” chapter of this bulletin.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in mathematical sciences. For a full description of this program, refer to the “Division of Student Affairs and Enrollment Services” chapter of this bulletin.

Courses in mathematics (MATH)

Students registering for CMSC 201, 255 or MATH 131, 141, 151, 200, 211, 300 or STAT 208 or 210 must have taken the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case in which the stated alternative prerequisite course has been completed at VCU. Credit for no more than one course may be earned from among MATH 101, MATH/MGMT 111, MATH 141.

MATH 001 Elementary Algebra

Semester course; 3 lecture or 3 laboratory-tutorial hours. No credit. Prerequisite: Permission of the department chair. The purpose of this course is to provide laboratory and tutorial instruction for those seeking remediation or review of high school algebra. Topics include basic properties of real numbers, operations with algebraic expressions, solution of equations and inequalities, exponents and radicals, introduction to functions and graphing.

MATH 131 Introduction to Contemporary Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 001 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Topics include optimization problems; data handling; growth and symmetry; and mathematics with applications in areas of social choice. Major emphasis is on the process of taking a real-world situation, converting the situation to an abstract modeling problem, solving the problem and applying what is learned to the original situation. Serves as a prerequisite for STAT 208 or 210, but does not serve as a prerequisite for calculus or other advanced mathematical sciences courses.

MATH 141 Algebra with Applications

Semester course; 3 lecture hours. 3 credits. Prerequisites: One year of high school algebra and satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Topics include sets, functions,

exponents, logarithms, matrix algebra, systems of linear equations, inequalities, binomial theorems, sequences, series, complex numbers and linear programming. Students may not receive degree credit for both MATH 141 and MATH 101. Credit for no more than one course may be earned from among MATH 101, MATH 111 and MATH 141.

MATH 151 Precalculus Mathematics

Semester course; 3 lecture and 1 mathematics laboratory/recitation hours. 4 credits. Prerequisite: MATH 141 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Concepts and applications of algebra and trigonometry. Topics include graphics, transformations and inverses of functions; linear, exponential, logarithmic, power, polynomial, rational and trigonometric functions. Credit for no more than one course may be earned from among MATH 101, MATH 111 and MATH 141.

MATH 185 Computational Linear Algebra

Semester course; 2 lecture hours. 2 credits. Corequisite: MATH 200. Prerequisite: MATH 141 or MATH 151 or satisfactory score on the Mathematics Placement Test. Course intended for freshmen engineering students. Euclidean vectors, systems of linear equations, matrices, determinants, matrix inverse independence, bases, eigenvector and eigenvalue problems.

MATH 191 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. For a course to meet the general education requirements it must be so stated in the Schedule of Classes. See the Schedule of Classes for specific topics and prerequisites.

MATH 200-201 Calculus with Analytic Geometry

Continuous course; 4 lecture hours. 4-4 credits. Prerequisite for MATH 200: MATH 151 or satisfactory score on the VCU Mathematics Placement Test (algebra section) within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Prerequisites for MATH 201: MATH 200. Limits, continuity, derivatives, differentials, antiderivatives and definite integrals. Applications of differentiation and integration. Selected topics in analytic geometry. Infinite series.

MATH 211 Mathematical Structures

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151 or a satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. An introduction to mathematical logic and set theory, including applications in Boolean algebras and graph theory. A core course for mathematical sciences.

MATH 255 Introduction to Computational Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. (A core course for mathematics/applied mathematics majors.) An introduction to computer algebra systems (CAS) and their use in mathematical, scientific and engineering investigations/computations. Introductory mathematical computer programming using a CAS, including implementation of problem-specific algorithms.

MATH 291 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See the Schedule of Classes for specific topics and prerequisites.

MATH 300 Introduction to Mathematical Reasoning

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. (A core course for mathematics/applied mathematics majors.) An introduction to basic concepts of mathematical reasoning and the writing of proofs in an elementary setting. Direct, indirect and induction proofs. Illustrations of the concepts include basic proofs from mathematical logic, elementary set theory, elementary number theory, number systems, foundations of calculus, relations, equivalence relations, functions and counting with emphasis on combinatorial proofs.

MATH 301 Differential Equations

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. Solutions of ordinary differential equations of first order. Solutions of higher order linear differential equations with constant coefficients and variable coefficients by the methods of undetermined coefficients and variation of parameters, solutions by Laplace transforms and applications.

MATH 302 Numerical Calculus

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: CMSC 201 or demonstrated knowledge of FORTRAN and MATH 201. An introduction to numerical algorithms for solving systems of linear equations, finding zeroes, definite integration, minimization, etc. Those features of FORTRAN that affect the precision of numerical computations will be included.

MATH 303 Investigations in Geometry

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisites: MATH 131 and STAT 208, 210 or 212. A study of topics in Euclidean geometry to include congruence, similarity, measurement, coordinate geometry, symmetry and transformation in both two and three dimensions. These topics will be investigated using manipulatives and computer software. May be used for credit toward the degree by mathematical sciences majors; but does not count toward the 24 upper division mathematical sciences credits required for these majors.

MATH 305 Elementary Number Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 300. Divisibility, congruences, Euler phi-function, Fermat's Theorem, primitive roots, Diophantine equations.

MATH 307 Multivariate Calculus

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. The calculus of vector-valued functions and of functions of more than one variable. Partial derivatives, multiple integrals, line integrals, surface integrals and curvilinear coordinates. Lagrange multipliers; theorems of Green, Gauss and Stokes. Applications.

MATH 309/STAT 309 Introduction to Probability Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. Completion of MATH 211 or MATH 300 (or equivalent knowledge) is strongly recommended. A study of the mathematical theory of probability, including finite and infinite sample spaces, random

variables, discrete and continuous distributions, mathematical expectation, functions of random variables and sampling distributions.

MATH 310 Linear Algebra

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 200, and (MATH 300 or 201). Systems of linear equations, vector spaces, linear dependence, bases, dimensions, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues and geometric applications.

MATH 327/OPER 327 Mathematical Modeling

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 200. Fundamental concepts of mathematical modeling. Topics may include differential equation models, optimization models and probabilistic models. Practical problems will be discussed throughout.

MATH 351 Applied Abstract Algebra

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 300. A survey of several areas in applied abstract algebra which have applications in computer science such as groups, codes, matrix algebra, finite fields and advanced graph theory.

MATH 391 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit. A study of selected topics in mathematics. See the Schedule of Classes for specific topics and prerequisites.

MATH 437 Applied Partial Differential Equations

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 and 307. Parabolic (heat), hyperbolic (wave), and elliptic (steady-state) partial differential equations are studied. Solution techniques are demonstrated, including separation of variables and integral transforms. Practical problems and applications are emphasized.

MATH 490 Mathematical Expositions

Semester course; 2 lecture hours. 2 credits. Prerequisites: ENGL 200 and nine credits in mathematics courses at the 300 level or above. Required for mathematics and applied mathematics tracks within B.S. in mathematical sciences. Designed to help students attain proficiency in expository mathematical writing and in oral presentations, which require the efficient and effective use of mathematics and the English language. Students will learn a variety of topics in mathematics and will write reviews of selected award-winning mathematics papers. Writing intensive.

MATH 492 Independent Study

Semester course; variable; 2, 3, 4 credits per semester. Maximum four credits per semester; maximum total of six credits. Generally open to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

MATH 493 Mathematical Sciences Internship

Semester course; the equivalent of at least 15 work hours per week for a 15-week semester. 3 credits. Mathematical sciences majors only with junior or senior standing. Admission by permission from the department chair. Through placement in a position in business, industry, government or the university, the student will serve as

an intern in order to obtain a broader knowledge of the mathematical sciences and their applications.

MATH 501 Introduction to Abstract Algebra

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and 310 (or their equivalents). An introduction to groups, rings and fields from an axiomatic point of view. Coset decomposition and basic morphisms.

MATH 505 Modern Geometry

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and (MATH 307 or MATH 310). Topics in Euclidean, projective and non-Euclidean geometries from a modern viewpoint.

MATH 507-508 Analysis I-II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MATH 300, 307 and 310, or permission of instructor. Theoretical aspects of calculus, sequences, limits, continuity, infinite series, series of functions, integration, differential geometry.

MATH 509-510 General Topology I-II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MATH 300 and MATH 307. Foundations and fundamental concepts of point-set topology. Topological spaces, convergence, connected sets, compactness, product spaces, quotient spaces, function spaces, separation properties, metrization theorems, mappings and compactifications.

MATH 511 Applied Linear Algebra

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 310. The algebra of matrices, the theory of finite dimensional vector spaces and the basic results concerning eigenvectors and eigenvalues, with particular attention to applications.

MATH 512 Complex Analysis for Applications

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307 and (MATH 300 or knowledge equivalent to MATH 300). The algebra and geometry of complex numbers, analytic functions, integration, series, contour integration, analytic continuation, conformal mapping, with particular attention to applications.

MATH 515 Numerical Analysis I

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 310 or (MATH 201 and MATH 185). Knowledge of a programming language recommended. Solutions of equations, interpolation and approximation, numerical integration, iterative methods for solving linear equations, calculation of eigenvalues and eigenvectors. Selected algorithms may be programmed for solution on computers.

MATH 516 Numerical Analysis II

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 515. Numerical solution of initial value problems in ordinary differential equations, two-point boundary value problems. Introduction to numerical techniques for solving partial differential equations. Selected algorithms may be programmed for solution on computers.

MATH 517-518 Methods of Applied Mathematics

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: MATH 301 and MATH 307 and (MATH 300 or knowledge equivalent to MATH 300). Vector analysis, matrices, complex analysis, special functions, Legendre and Hermite polynomials. Fourier series, Laplace transforms, integral equations, partial differential equations, boundary-value and initial-value problems.

MATH 520/OPER 520 Game Theory and Linear Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 310. The mathematical basis of game theory and linear programming. Matrix games, linear inequalities and convexity, the mini-max theorems in linear programming, computational methods and applications.

MATH 521 Introduction to Algebraic Number Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 501. Introduction to algebraic numbers and algebraic number fields with emphasis on quadratic and cyclotomic fields. Units, primes, unique factorization.

MATH 525 Introduction to Combinatorial Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 300 and 310, or permission of instructor. Introduction to the problems and methods of solution in the enumeration, existence and construction of some discrete mathematical structures. Discussion of generating functions, recurrence relations, Ramsey's theorem, matching theory, combinatorial designs, Latin squares and linear coding theory.

MATH 530 The History of Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisites: 17 credits at the 200 level or above in mathematical sciences or permission of instructor. Surveys major trends in the development of mathematics from ancient times through the 19th century and considers the cultural and social contexts of mathematical activity. Either MATH 530 or MATH 531 (but not both) may be applied to the master's degree in mathematical sciences or the M.S. degree in computer science. Both MATH 530 and MATH 531 may be applied to the M.Ed. degree in mathematics education.

MATH 531 Expositions in Modern Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: Six credits at the 400 level or above in mathematical sciences. Studies descriptively several major ideas relevant to present-day mathematics, such as the advent of pure abstraction, difficulties in the logical foundations of mathematics, the impact of mathematics and statistics in the 20th century, and the computer revolution. Either MATH 530 or MATH 531 (but not both) may be applied to the master's degree in mathematical sciences or the M.S. degree in computer science. Both MATH 530 and MATH 531 may be applied to the M.Ed. degree in mathematics education.

MATH 532 Ordinary Differential Equations I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 301 and 310 or the equivalent. MATH 507 is recommended. Existence and uniqueness for systems, linear systems, fundamental matrix solutions, matrix exponential, nonlinear systems, plane autonomous systems and introduction to stability.

MATH 555/ENGR 555 Dynamics and Multivariable Control I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 301 and 310 or the equivalent. Systems of differential equations with controls, linear control systems, controllability, observability, introduction to feedback control and stabilization.

MATH 591 Topics in Mathematics

Semester course; 1-3 credits. May be repeated for credit with different topics. Prerequisite: Permission of the instructor. Open to qualified undergraduates.

A study of selected topics in mathematical sciences. See the Schedule of Classes for specific topics and prerequisites.

Military Science and Leadership

Major Stanley Jones

Director (2003)

B.A. 1989 Loyola University, Chicago

The Military Science curriculum teaches the principles of management and leadership as a foundation for civilian and military careers. Graduates of this program are eligible for appointments as commissioned officers in the U.S. Army, the U.S. Army Reserve or Army National Guard.

For more information on participating in ROTC or on scholarship opportunities, contact the Recruiting Operations Officer, Capt. Andrew Phillips, call (804) 287-6066, or visit: <http://military.richmond.edu>.

Scholarships

Army ROTC offers students several opportunities for scholarships worth up to \$28,000 at VCU. High school students and students on campus may apply for a three-year scholarship. Two-year scholarships also are available to on-campus students. All scholarships cover VCU tuition, most books, laboratory fees and provide between \$250 to \$400 a month during the school year for living expenses.

The Four-year Program

The traditional four-year program is divided into two parts.

Basic course

Normally freshman and sophomore years which cover military history, traditions, organizations and national defense. The emphasis in the course is on leadership development and general life skills. There is not commitment to the U.S. Army, unless the student is on a ROTC scholarship.

Advanced course

Departmental approval is required to enter junior- and senior-level classes. They cover instruction and practice in management, tactics, ethics, professionalism and continued leadership development.

All ROTC uniforms and materials are furnished at no cost. Students selected for advanced classes receive \$350 or \$400 a month during the school year.

During the summer between the junior and senior years, students will attend a six-week course, Leadership Development and Assessment Camp (LDAC). LDAC provides hands-on experience and evaluations for students at Fort Lewis, Wash.

The Two-year Program

Students who have not taken any of the basic classes are still eligible for a commission through the two-year program.

In this program, student attend the Leader's Training Course (LTC) at Fort Knox, Ky., for four weeks during the summer. Upon completion of LTC, students are eligible for the advanced courses in their junior and senior years.

Simultaneous Membership Program

This program allows students to become members of the Army National Guard or the Army Reserve while enrolled in Army ROTC.

Advanced ROTC SMP students are paid for their guard/reserve training plus they receive an ROTC allowance of \$350 or \$400 a month during their two years in the advanced course.

ROTC for veterans

If students are veterans, military experience can fulfill the basic course requirements. Some veterans may enroll directly into advanced courses. In addition to any financial assistance received from ROTC, veterans are still qualified to receive any and all VEAP/GI Bill/Army College Fund benefits to which they are entitled.

Courses in military science (MILS)

MILS 101 Military Science and Leadership: Foundations of Officership

Semester course; 1 lecture hour. 1 credit. Introduces the student to issues and competencies that are essential to a commissioned officer's responsibilities. These initial lessons establish a framework for understanding officership, leadership and Army values. Additionally the semester addresses "life skills" including fitness and time management. The course is designed to give the student accurate insight into the Army profession and the officer's role within the Army.

MILS 102 Military Science and Leadership: Basic Leadership

Semester course; 1 lecture hour. 1 credit. Establishes foundation of basic leadership fundamentals such as problem solving, communications, briefings and effective writing, goal setting, techniques for improving listening and speaking skills, and an introduction to counseling.

MILS 201 Military Science and Leadership: Individual Leadership Studies

Semester course; 2 lecture hours. 2 credits. Designed to develop the student's knowledge of self, self-confidence and individual leadership skills. Through experiential learning activities, students develop problem-solving and critical thinking skills, and apply communication feedback, and conflict resolution skills.

MILS 202 Military Science and Leadership: Leadership and Teamwork

Semester course; 2 lecture hours. 2 credits. Prerequisite: MILS 201 or permission of the instructor. Focuses on self-development guided by knowledge of self and group processes. Experiential learning activities are designed to challenge a student's current beliefs, knowledge and skills. Examines how to build successful teams, various methods for influencing action, effective communication in setting and achieving goals, the importance of timing the decision, creativity in the problem-solving process, and obtaining team buy-in through immediate feedback.

MILS 203 Basic Military Science

0-6 credits. Optional ROTC Basic Camp. Five weeks of training at a military installation. Travel pay and salary stipend provided through the military science department. Student not obligated to any military service. Basic Camp graduates are eligible to enroll in advanced military sciences courses.

MILS 301 Military Science and Leadership: Leadership and Problem Solving

Semester course; 3 lecture hours. 3 credits. Prerequisites: MILS 101, 102, 201, and 202 or MILS 203 or approval by department chair. Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities.

MILS 302 Military Science and Leadership: Leadership and Ethics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MILS 301 or approval by department chair. Examines the role communications, values and ethics play in effective leadership. Topics include ethical decision-making, consideration of others, spirituality in the military and a survey of Army leadership doctrine. Emphasis on improving oral and written communication abilities.

MILS 306 Military Science

0 credits. Prerequisite: MILS 302 and successful completion of four basic military science courses or MILS 203 Basic Military Science for six credits. ROTC National Advanced Leadership Camp. The ROTC camp summer practicum is six weeks long. Individual and group experience for application of leadership training. Exposure to leadership situations that require decisions made under physical and mental stress conditions.

MILS 401 Military Science and Leadership: Leadership and Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MILS 301 and 302, or approval by department chair. Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration and developmental counseling techniques.

MILS 402 Military Science and Leadership: Officership

Semester course; 3 lecture hours. 3 credits. Prerequisites: MILS 301, 302 and 401 or approval by department chair. Study includes case study analysis of military law and practical exercises on establishing an ethical command climate. Students must complete a semester-long Senior Leadership project that requires them to plan, organize, collaborate, analyze and demonstrate their leadership skills.

Department of Philosophy

Anthony Ellis

Professor and Department Chair (1990)
B.D. 1967 University of London
M.A. 1968 University of London

The Department of Philosophy offers a Bachelor of Arts in Philosophy.

Philosophy aims at a deeper understanding of matters that should most concern the human race. Philosophical questions crop up in science, religion, art, morality, politics, medicine and in everyday life. Students enrolled in philosophy are encouraged to think seriously about fundamental issues in all these domains and to formulate coherent and well-grounded points of view. Because of its extensive use of critical and analytical reasoning, philosophy equips the student for careers in medicine, law, business and other fields that require careful thought and the clear expression of ideas.

Additionally, the department offers elective courses for students in other programs, as well as for those majoring in philosophy or religious studies.

Degree requirements – Bachelor of Arts in Philosophy

The Bachelor of Arts curriculum in philosophy requires a minimum of 120 credits, with at least 30 of those credits in philosophy. Fifteen of these credits must be selected from upper-level philosophy courses.

Majors in philosophy must fulfill the requirements of either the regular concentration or the ethics and public policy concentration. Majors wishing to go to graduate

school in philosophy are advised to choose the regular concentration. Students whose main interests in philosophy are ethics, political philosophy, philosophy of law, or public policy (and who may wish to pursue graduate work in law, political science, economics and related areas) will probably want to choose the ethics and public policy concentration.

Required courses – regular concentration

- 1) PHIL 103 Ancient Greek and Medieval Western Philosophy and PHIL 104 Modern Western Philosophy
- 2) One of PHIL 211/212/213/214 (introductory ethics courses)
- 3) PHIL 222 Logic
- 4) Three of the following with at least one course from each of group (a) and group (b):
 - a) PHIL 320 Philosophy of Law; PHIL 327 Ethical Theory; or PHIL 335 Social and Political Philosophy
 - b) PHIL 301 Mind and Reality; PHIL 302 Reason and Knowledge; PHIL 303 Philosophy of Language
 - c) PHIL 391 Topics in Philosophy
- 5) PHIL 490 Seminar in Philosophy

Required courses – ethics and public policy concentration

- 1) One of PHIL 101 Introduction to Philosophy, PHIL 103 Ancient Greek and Medieval Western Philosophy or PHIL 104 Modern Western Philosophy
- 2) One of PHIL 211/212/213/214 (introductory ethics courses)
- 3) One of PHIL 221 Critical Thinking or PHIL 222 Logic
- 4) One of PHIL 301 Mind and Reality, PHIL 302 Reason and Knowledge or PHIL 303 Philosophy of Language
- 5) Three of PHIL 320 Philosophy of Law, PHIL 327 Ethical Theory, PHIL 335 Social and Political Philosophy or PHIL 490 Seminar in Philosophy
- 6) Two of the following courses, which for this concentration will be accepted within the required 30 credits of the program: MRBL 350 Tort Law, CRJS 324 Courts and the Judicial Process, CRJS 355 Foundations of Criminal Justice Practice, ECON 301 Microeconomic Theory, ECON 302 Macroeconomic Theory, HIST 338 History of Socialism, HIST 369, 370 American Constitutional and Legal Development, HIST 333/ECON 419 History of Economic Thought, POLI 310 Public Policy, POLI 314 U.S. Constitutional Law, POLI 315 Courts and Politics,

SOCY 302 Contemporary Social Problems, SOCY 430 Politics, Power and Ideology

Students also must fulfill the general education requirements of the College of Humanities and Sciences for the Bachelor of Arts degree and undergraduate requirements.

Minors in philosophy

A philosophy minor consists of 18 credits, with at least nine of those credits in upper-level (300–400) courses and either PHIL 103 Ancient Greek and Medieval Philosophy or PHIL 104 Modern Western Philosophy.

Minor in philosophy of law

A minor in philosophy of law consists of 18 credits, to include PHIL 327 Ethical Theory, PHIL 335 Social and Political Philosophy, PHIL 320 Philosophy of Law and one course from the following — PHIL 211 History of Ethics, PHIL 212 Ethics and Applications and PHIL 213 Ethics and Health Care. Philosophy of law minors also must take two of the following courses: POLI 341, 342 History of Political Thought, POLI 314 U.S. Constitutional Law and HIST 369, 370 American Constitutional and Legal Development.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in philosophy. A full description of this program appears in the “Division of Student Affairs and Enrollment Services” chapter of this bulletin.

Courses in philosophy (PHIL)**PHIL 101 Introduction to Philosophy**

Semester course; 3 lecture hours. 3 credits. An introduction to some of the main branches of philosophy. Some of the issues that might be addressed are: What is knowledge? Is reason or experience the basis for all knowledge? Can we have knowledge of the past or of the future? What is Truth? Does God Exist? Is there a mental realm separate from the material realm? Are the laws of nature deterministic? Do we have free will? What makes an action morally permissible? What is the proper role of the State in regulating our lives? This course is directed primarily at first and second year students.

PHIL 103 Ancient Greek and Medieval Western Philosophy

Semester courses; 3 lecture hours. 3 credits. A survey of Western philosophy from the ancient Greeks (e.g., Socrates, Plato and Aristotle) through the medieval period (e.g., Augustine and St. Thomas Aquinas).

PHIL 104 Modern Western Philosophy

Semester course; 3 lecture hours. 3 credits. A survey of Western philosophy from the Renaissance to the 19th century (e.g., Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant, Hegel and Marx).

PHIL 211 History of Ethics

Semester course; 3 lecture hours. 3 credits. Corequisite: ENGL 200 or equivalent. A philosophical investigation of the main concepts and theories of ethics and their application to fundamental moral questions, as illustrated by the ethical systems of such historically important Western philosophers as Plato, Aristotle, Augustine, Hume, Mill and Kant.

PHIL 212 Ethics and Applications

Semester course; 3 lecture hours. 3 credits. Credit may be received for only one of PHIL 212, 213 or 214. Corequisite: ENGL 200 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in different areas. Such problems as abortion, the welfare of animals, world hunger, pornography, capital punishment, nuclear defense, sexual behavior, environmental ethics and reverse discrimination may be used as illustrations.

PHIL 213 Ethics and Health Care

Semester course; 3 lecture hours. 3 credits. Credit may be received for only one of PHIL 212, 213 or 214. Corequisite: ENGL 200 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in health care. The following issues may be used as illustrations: abortion, euthanasia and the right to die, human experimentation, treating mental illness, genetic technologies, the concepts of health and disease and the funding of health care.

PHIL 214 Ethics and Business

Semester course; 3 lecture hours. 3 credits. Credit may be received for only one of PHIL 212, 213 or 214. Corequisite: ENGL 200 or equivalent. A philosophical investigation of the main concepts and theories of ethics, with applications to fundamental moral questions as they arise in business. The following issues arise in affirmative action, investment in unethical companies or countries, product safety, whistle blowing and advertising.

PHIL 221 Critical Thinking

Semester course; 3 lecture hours. 3 credits. An introduction to inductive and deductive reasoning, with emphasis on common errors and fallacies.

PHIL 222 Logic

Semester course; 3 lecture hours. 3 credits. An evaluation of deductive arguments utilizing the methods of symbolic logic.

PHIL 291 Topics in Philosophy

Semester course; variable; 1-4 credits. Prerequisite: As specified in the Schedule of Classes or written permission of instructor. An introductory study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topic to be offered each semester.

PHIL 301 Mind and Reality

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy including PHIL 221 or PHIL 222 and one of PHIL 101, 103 or 104 or permission of instructor. An examination of central metaphysical issues, for example, the

mind-body problem, free will, causality, action, realism and the problems of universals.

PHIL 302 Reason and Knowledge

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy including PHIL 221 or PHIL 222 and one of PHIL 101, 103 or 104 or permission of instructor. An examination of central epistemological issues, for example, the problem of justification, empirical knowledge, perception, rationality and truth.

PHIL 303 Philosophy of Language

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy including PHIL 222 and six additional credits, at least three of which must be from PHIL 101, 103 or 104, or permission of the instructor. An examination of central issues in the philosophy of language; for example, the nature of meaning and reference, reductionism, properties of languages and the character of artificial symbols systems.

PHIL 320 Philosophy of Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy, which must include PHIL 221 or PHIL 222, and one of PHIL 211, 212, 213, 214 or permission of instructor. A critical examination of the nature of law and criminal justice in the light of important human values. The following topics will be considered: the nature of law and legal reasoning, the legal enforcement of morality, and such controversies as punishment versus rehabilitation and the right to due process versus the need for public safety.

PHIL 326/RELS 326 Existentialism

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. An examination of the nature of truth, freedom, responsibility, individuality and interpersonal relations as found in some principal writings of Kierkegaard, Nietzsche, Jaspers, Sartre, Heidegger, Camus, Buber and Marcel.

PHIL 327 Ethical Theory

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy, which must include either PHIL 221 or PHIL 222, and one of PHIL 211, 212, 213, 214 or permission of instructor. A study of the problems of philosophical ethics, including relativism, egoism, utilitarianism, intrinsic value and the meaning and justification of ethical principles. Both historical and contemporary thinkers will be considered.

PHIL 331 Philosophy of Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits of philosophy and six credits of natural sciences courses. An examination of the bases of scientific inquiry in both the natural and social sciences; including a study of such topics as hypothesis formation and testing, and the nature of scientific laws, theories and explanations.

PHIL 335 Social and Political Philosophy

Semester course; 3 lecture hours. 3 credits. Prerequisites: Nine credits in philosophy, which must include either PHIL 221 or PHIL 222, and one of PHIL 211, 212, 213, 214 or permission of instructor. A critical examination of political power and of the relationship between the individual and society. Possible topics include: anarchism and the justification of having a state at all; political views about what sort of state is justified (e.g., conservatism, liberalism, communitarianism, feminism, Marxism); private vs. collective property; market vs. planned economies; democracy vs. totalitarianism; and civil disobedience and revolution.

PHIL 391 Topics in Philosophy

Semester course; variable; 1-4 credits. Prerequisite: As specified in the Schedule of Classes or permission of instructor. A study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See the Schedule of Classes for specific topic to be offered each semester.

PHIL 408/RELS 408 Indian Tradition

Semester course; 3 lecture hours. 3 credits. Prerequisites: At least six credits in philosophy or religious studies courses. A systematic analysis of the major theories of Indian religious and philosophical thought: Vedas, Upanishads, Gita, Charvaka, Jainism, Buddhism, the six systems of Hinduism and contemporary development.

PHIL 410/RELS 410/INTL 410 The Chinese**Tradition in Philosophy**

Semester course; 3 lecture hours. 3 credits. A study of the development of Confucianism, of alternative ways of thought prior to the fall of the Han Dynasty and of neo-Confucianism. The systems of thought are examined in the light of their social, political and religious impact on China, Korea and Japan.

PHIL 412/RELS 412/INTL 412 Zen Buddhism

Semester course; 3 lecture hours. 3 credits. A study of Zen Buddhism, including backgrounds in Indian philosophy and practice, development in China and Korea, and present day Zen theory and practice in Japan and in Western countries.

PHIL 421 Aesthetics

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. A critical survey of philosophies of art from antiquity to the 20th century. Topics include: the nature of art, creativity, aesthetic experience and aesthetic judgments.

PHIL 430/RELS 430 Philosophy of Religion

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three credits in philosophy (exclusive of PHIL 221 and PHIL 222) or permission of instructor. A critical analysis of such topics as the concept of God, arguments for the existence of God, the problem of evil, the concept of faith, religious language and the conceptual problems posed by the plurality of religions.

PHIL 440/RELS 440 Mysticism

Semester course; 3 lecture hours. 3 credits. Prerequisite: One course in philosophy or religious studies. A critical analysis of the varieties of mysticism in world religions. Arguments for and against mysticism will be emphasized. Mysticism will be related to art, psychology, science, philosophy, theology and magic.

PHIL 490 Seminar in Philosophy

Semester course; 3 lecture hours. 3 credits. May be repeated with different topics for a maximum of six credits. Prerequisite: One of PHIL 301, 302, 303, 320, 327, 335 or permission of instructor in exceptional cases. Research and analysis of selected philosophical topic in a seminar setting.

PHIL 492 Independent Study

Semester course; variable credit. Maximum of six credits per semester; maximum total of twelve credits for all independent study courses. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. An independent

study course to allow interested majors in philosophy to do research, under the direction of a professor qualified in that field, in an area of major interest.

PHIL 496 Senior Research Project

Semester course; 1-4 credits. Prerequisites: Senior status; two of PHIL 301, 302, 303, 320, 327, 335, 391; and written approval by faculty supervisor. An individual research project to develop a polished journal-length research paper. This course is intended primarily for students who wish to develop a dossier paper for submission to a philosophy graduate program.

PHIL 591 Topics in Philosophy

Semester course; variable; 1-4 credits. Prerequisite: Written permission of instructor or graduate standing. A graduate level, in-department study of an individual philosopher, a particular philosophical problem or a narrowly defined period or school. See Schedule of Classes for specific topic to be offered each semester.

Department of Physics

Robert H. Gowdy

Associate Professor and Department Chair (1979)
B.S. 1963 Worcester Polytechnic Institute
M.S. 1964 Yale University
Ph.D. 1968 Yale University

The Department of Physics offers the Bachelor of Science in Physics and the accelerated Bachelor of Science and Master of Science in Physics program.

The curriculum in physics prepares students for technical careers in physics or in an allied area; for careers in engineering, and for the teaching of physics in secondary schools. The curriculum also prepares students for graduate studies in physics or in a related area, and for graduate studies of a profession in fields such as business, medical science, environmental science, law or science writing.

The department also offers required and elective courses for students in other programs along with students majoring in physics.

Master of Science in Physics/ Applied Physics

For information about this program see the Graduate and Professional Programs Bulletin.

Degree requirements – Bachelor of Science in Physics

The Bachelor of Science curriculum in physics requires a minimum of 120 credits, including 53 credits in physics and physics-related courses, as detailed in the course lists.

To determine the biology course to fulfill the general education natural sciences requirement, students should consult with their adviser in the college's advising center or their physics adviser. CHEM 101-102, CHEZ/FRSZ 101L, 102L General Chemistry and Laboratories are highly recommended for all physics majors.

Along with the general education requirements of the College of Humanities and Sciences and the undergraduate requirements, students must take required courses and fulfill specific requirements for the degree as follows:

Required physics courses

PHYS 207 University Physics I	5
PHYS 208 University Physics II	5
PHYS 301 Classical Mechanics I	3
PHYS 320 Modern Physics	3
PHYZ 320L Modern Physics Laboratory	1
PHYS 340 Statistical Mechanics and Thermodynamics	3
PHYS 376 Electromagnetism	3
PHYS 380 Quantum Physics I	3
PHYS 450 Senior Physics Laboratory	3
PHYS 490 Seminar in Conceptual Physics	1
	30

Required mathematics courses

MATH 200 Calculus with Analytic Geometry I	4
MATH 201 Calculus with Analytic Geometry II	4
MATH 301 Differential Equations	3
MATH 307 Multivariate Calculus	3
	14

Elective physics and physics-related courses

A total of nine credits must be taken from the list of elective physics and physics-related courses provided below. Those students who have their primary major in physics are required to fulfill at least three of these credits using upper-level physics courses.

Any upper-level physics course not listed as a required course, e.g.:

PHYS 302 Classical Mechanics II
PHYS 397 Directed Study
PHYS 420 Quantum Physics II
PHYS 440 Introduction to Condensed Matter Physics
PHYS 491 Topics in Physics
PHYS 492 Independent Study

Any of the following math or statistics courses:

MATH 310 Linear Algebra
MATH 437 Applied Partial Differential Equations
MATH 511 Applied Linear Algebra
MATH 512 Complex Analysis for Applications
MATH 515, 516 Numerical Analysis I, II
MATH 517-518 Methods of Applied Mathematics
STAT 541 Applied Statistics for Engineers and Scientists

Any of the following chemistry courses:

CHEM 409 Instrumental Analysis
CHEM 510 Atomic and Molecular Structure

Any of the following engineering courses:

EGRB 303 Biotransport Processes
EGRB 427 Biomaterials
EGRC 301 Fluid Dynamics and Heat Transfer
EGRE 224 Introduction to Microelectronics
EGRE 303 Electronic Devices
EGRE 307 Integrated Circuits
EGRM 436 Engineering Materials
ENGR 301 Fluid Mechanics
ENGR 412 Advanced Engineering Mathematics

Suggested course sequence for Bachelor of Science in Physics

Freshman year (GenEd = General Education) credits

CHEM 101 and CHEZ/FRSZ 101L General Chemistry and Laboratory I	5
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II	5
ENGL 101 Writing and Rhetoric Workshop I (Level I GenEd)	3
MATH 200 Calculus with Analytic Geometry I	4
MATH 201 Calculus with Analytic Geometry II	4
PHYS 207 University Physics I	5
Level II general education requirements	4
	30

Sophomore year

BIOL 101 Biological Concepts (Level II GenEd)	3
ENGL 200 Writing and Rhetoric Workshop II (Level I GenEd)	3
MATH 301 Differential Equations	3
MATH 307 Multivariate Calculus	3
PHYS 208 University Physics II	5
PHYS 301 Classical Mechanics I	3
PHYS 320 Modern Physics	3
PHYZ 320L Modern Physics Laboratory	1
Level II general education requirements	6
	30

Junior year

PHYS 340 Statistical Mechanics and Thermodynamics	3
PHYS 376 Electromagnetism	3
PHYS 380 Quantum Physics I	3
Physics/mathematics elective	3
Writing Intensive course (Level I GenEd)	3
Level II general education requirements	12
Electives	3
	30

Senior year

PHYS 450 Senior Physics Laboratory	3
PHYS 490 Seminar in Conceptual Physics	1
Physics/mathematics electives	6
Level II general education requirements	13
Electives	7
	30

Those students intending to pursue graduate studies in physics should take PHYS 302, 420, 440, 571, 576 and/or 580. Those interested in experimental physics should also take one or more credits in PHYS 397 or 492.

Double major (B.S.) in engineering and physics

A detailed description of this program can be found in the "School of Engineering" chapter of this bulletin.

Minor in physics

A minor in physics consists of 20 credits made up of PHYS 207, 208, 320, PHYZ 320 and six credits of physics or physics-related courses which are acceptable for the major.

Extended Teacher Preparation Program

Physics majors interested in teaching careers in elementary, middle, secondary or special education can enter the Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in physics and a master's degree in teaching. For more information about this program jointly administered by the School of Education and the College of Humanities and Sciences, contact the School of Education's Office of Student Services.

Accelerated B.S./M.S. Physics Program

Students enrolled in the Bachelor of Science in Physics program may elect to take graduate courses that may count toward the Master of Science degree. Up to six hours of graduate credit may be earned without any special provisions; however, to offer more than six credits of pre-admission graduate credits toward the Master of Science degree, the student must apply for admission to the Accelerated Bachelor of Science/Master of Science program through the Department of Physics Graduate Admissions Committee in the junior year, indicating (1) a curriculum plan for completing the physics Bachelor of Science degree within two years or its part-time equivalency and (2) which graduate courses the student intends to offer toward the physics Master of Science degree. Those applying for this accelerated program should

have a "B" average or better. Admission to the accelerated program does not imply admission to the graduate program. Application for graduate admission must be made when a student applies for the Bachelor of Science degree.

Courses in physics (PHYS)

PHYS 101 Foundations of Physics

Semester course; 3 lecture hours. 3 credits. Offered each semester. For non-science majors. Introduction to the fundamental ideas of physics. The course covers selected topics in mechanics, heat, optics, electricity and magnetism and modern physics. Not applicable toward the physics major. An optional laboratory may be taken with this course. See PHYZ 101L.

PHYZ 101L Foundations of Physics Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: PHYS 101. An optional laboratory consisting of experiments and activities correlated with PHYS 101.

PHYS 103 Elementary Astronomy

Semester course; 3 lecture hours. 3 credits. A descriptive approach to astronomy dealing with basic features of our solar system, our galaxy and the universe. Not applicable toward physics major requirements. An optional laboratory may be taken with this course. See PHYZ 103L.

PHYZ 103L Elementary Astronomy Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisite: PHYS 103. An optional laboratory course consisting of experiments and activities related to PHYS 103.

PHYS 107 Wonders of Technology

Semester course; 5 lecture/laboratory/recitation hours. 4 credits. Introduction to physics concepts involved in everyday technological applications. The course covers selected topics in mechanics, heat, optics, electricity and magnetism, and modern physics by depicting their role in common devices. The laboratory focuses on applications of physics principles to everyday real-life situations. Not applicable toward the physics major.

PHYS 201-202 General Physics

Continuous course; 3 lecture and 3 laboratory hours. 4-4 credits. Prerequisite: MATH 151. Designed primarily for life-science majors. First semester: basic concepts of motion, waves and heat. Second semester: basic concepts of electricity, magnetism, light and modern physics. Not applicable toward physics major requirement.

PHYS 207 University Physics I

Continuous course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Corequisite: MATH 200. A vector- and calculus-based introduction to the fundamental concepts of mechanics, heat and wave motion.

PHYS 208 University Physics II

Continuous course; 3 lecture, 1 recitation and 3 laboratory hours. 5 credits. Prerequisite: PHYS 207. Corequisite: MATH 201. A vector- and calculus-based introduction to the fundamentals of electricity, magnetism and optics.

PHYS 291 Topics in Physical Science

Semester course; 1-3 lecture or laboratory hours. Variable (1-3) credits per semester. A study of a selected topic in physics, astronomy, geology, meteorology or oceanography. Not applicable toward physics major requirements. See the Schedule of Classes for specific topic(s) and possible prerequisites.

PHYS 301 Classical Mechanics I

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208 and MATH 301. Corequisite: MATH 307. Review of vector calculus. Newtonian mechanics: single particle, oscillations, motion under central forces, dynamics of a systems of particles.

PHYS 302 Classical Mechanics II

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 307. Motion in noninertial frames, dynamics of rigid bodies, coupled oscillators, continuous systems, wave equations in one dimension.

PHYS 307/MHIS 307 The Physics of Sound and Music

Semester course; 3 lecture hours. 3 credits. Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major requirements.

PHYS 315/ENVS 315 Energy and the Environment

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior or senior standing. A study of society's demands for energy, how it is currently being met, the environmental consequences thereof and some discussion of alternatives. Open to non-physics majors; not applicable to the physics major.

PHYS 320 Modern Physics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 208 and MATH 301. Corequisite: MATH 307. Foundations of modern physics including special relativity, thermal radiation and quantization, wave-particle duality of radiation and matter. Schroedinger equation. Introduction to atomic, nuclear and particle physics. Molecular structure and spectra. A continuation of PHYS 208.

PHYZ 320L Modern Physics Laboratory

Semester course; 3 laboratory hours. 1 credit. Pre- or corequisite: PHYS 320. Experimental work correlated with PHYS 320.

PHYS 325 Visualization of Physics Using Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207-208 and PHYS 320 or permission of instructor. Visualization of various areas of physics using the Mathematica language for performing numerical calculations and producing graphics and animations. Examples will be taken from classical mechanics, classical electromagnetism, modern physics, statistical mechanics and condensed matter physics.

PHYS 340 Statistical Mechanics and Thermodynamics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 307. Microscopic theory of temperature, heat and entropy, kinetic

theory, multicomponent systems, quantum statistics. Mathematical relationships of thermodynamics.

PHYS 376 Electromagnetism

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 307. Electrostatics, magnetism and electromagnetic properties of matter, Maxwell's equations, electromagnetic waves, boundary conditions, polarization.

PHYS 380 Quantum Physics I

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 320 and MATH 307, or permission of instructor. Brief introduction to the correspondence between classical and quantum mechanics. Schrodinger wave equation, operator methods in quantum mechanics, angular momentum and conservation laws, solution to harmonic oscillator and the hydrogen atom, magnetic dipole momentum and spin.

PHYS 391 Topics in Physics

Semester course; 1-3 lecture hours. Variable; 1-3 credits per semester. Maximum total of six credits. In-depth study of a selected topic in physics or physics-related technology, usually at a level requiring only elementary algebra. Not applicable toward physics major requirement. See the Schedule of Classes for specific topic(s), credit and possible prerequisites.

PHYS 397 Directed Study

Semester course; variable; 1-3 credits per semester. Maximum of three credits applicable toward physics major requirement; maximum total of four credits. Open to nonmajors. Determination of amount of credit and permission of instructor must be obtained before registration of course. Intended to allow nonmajors and majors to examine in detail an area of physics or physics-related technology not otherwise available in upper-level courses. May involve either directed readings or directed laboratory work.

PHYS 420 Quantum Physics II

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 380 or permission of instructor. Transition rates, addition of angular momentum, multi-electron atoms-Ground state, X-ray and optical excitations, time independent perturbation theory, relativistic hydrogen atom and the structure of atoms, collision theory, nuclear structure, elementary particles and their symmetries.

PHYS 422 Optics

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHYS 376 or permission of instructor. Comprehensive study of propagation of light, including geometrical optics, polarization, interference, diffraction, Fourier optics and quantum optics.

PHYS 440 Introduction to Condensed Matter Physics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 376 and PHYS 380. Structure and bonding in solids, phonons, free electron Fermi gas, energy bands, semiconductors, Fermi surface and optical properties. Magnetism.

PHYS 450 Senior Physics Laboratory

Semester course; 1 lecture and 4 laboratory hours. 3 credits. Prerequisites: PHYS 301, PHYS 320 and PHYS 320L. Experiments in condensed matter physics with an introduction to the instrumentation and data analysis used in the research laboratory.

PHYS 490 Seminar in Conceptual Physics

Semester course; 1 lecture and 1 recitation hour. 1 credit. Prerequisites: PHYS 376 and PHYS 420. Attend weekly physics colloquia, practice oral presentation of ideas and problems. Assessment of general physics background.

PHYS 491 Topics in Physics

Semester course; 3 lecture hours. 3 credits. Maximum of three credits applicable toward physics major requirement; maximum total of six credits. An in-depth study of a selected topic in physics. See the Schedule of Classes for specific topic(s) and prerequisites.

PHYS 492 Independent Study

Semester course; variable; 1-3 credits per semester. Maximum of three credits applicable toward physics major requirement; maximum total of eight credits. Open generally to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent projects in experimental or theoretical physics.

PHYS 571 Theoretical Mechanics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 301 and MATH 301 or permission of instructor. An introduction to advanced dynamics involving the Lagrangian and Hamiltonian formalisms.

PHYS 576 Electromagnetic Theory

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 376 and MATH 301 or permission of instructor. Maxwell's equations of electromagnetism, vector and scalar potentials, electromagnetic waves and radiation theory.

PHYS 580 Quantum Mechanics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 380, MATH 307 or permission of instructor. Theoretical quantum descriptions with emphasis upon mathematical techniques. Schrodinger equation, hydrogen atom, eigenfunctions and eigenvalues, angular momentum and spin and perturbation theory.

PHYS 591 Topics in Physics

Semester course; 3 lecture hours. Variable; 1-3 credits. Open to graduate students and to undergraduate students with advanced standing. An in-depth study of a selected topic in advanced physics. See the Schedule of Classes for specific topic(s) and additional prerequisites. Applicable toward physics major requirements.

Department of Psychology

Everett L. Worthington

Professor and Department Chair (1978)
B.S.N.E. University of Tennessee
M.S.N.E. Massachusetts Institute of Technology
M.A. University of Missouri
Ph.D. 1978 University of Missouri

Donelson R. Forsyth

Associate Chair, Professor and Director of Graduate and Undergraduate Studies (1978)
B.S. 1974 Florida State University
M.A. 1975 University of Florida
Ph.D. 1978 University of Florida

Barbara O. Hoffman

Assistant Director of Undergraduate Studies and
Director of Center of Information and Advising
B.A. 1960 Grove City College

The Bachelor of Science curriculum in psychology reflects the discipline's major functions — scientific research, teaching, acting as a healing profession, and raising philosophical questions about the assumptions, values and ideals of human beings and their societies, which reflects psychology's origin in philosophy. Through a core set of requirements the student systematically develops understanding and skill in scientific methods of inquiry, focusing on human mind and behavior. To fulfill the degree requirements, students may pursue the standard curriculum by selecting courses from four content areas that introduce students to the healing and philosophical sides of psychology and provide a broad understanding of the field as a whole; or the student may apply to one of several more focused concentrations that draw upon the special strengths of the VCU Department of Psychology.

Master of Science and Doctor of Philosophy in Psychology programs

For information about graduate work in psychology, see the Graduate and Professional Programs Bulletin.

Degree requirements – general

Students should carefully review the College of Humanities and Sciences general requirements. The Bachelor of Science in Psychology curriculum was developed in the context of these general requirements. It is the student's responsibility to know the specific requirements of both the College of Humanities and Sciences and the Department of Psychology. It also is the student's obligation to plan a meaningful program of study and to consult regularly with advisers in the Career Information and Advising Center.

Degree requirements – Bachelor of Science in Psychology

The Bachelor of Science curriculum in psychology requires a minimum of 120 credits, with at least 30 of those credits in psychology, excluding PSYC 201, which may,

however, be counted as an elective outside the required 30 credit hours. However, no more than 40 credits in psychology may be presented for graduation for the Bachelor of Science degree. This limit does not apply to courses numbered 490 and above. At least 15 of the 30 required credits must be taken at VCU.

The following three courses constitute the required core in the B.S. curriculum, and a minimum grade of “C” is required in all of them. Prior to taking PSYC 214, the student must complete STAT 210 with a “C” grade or better.

PSYC 101 Introduction to Psychology
 PSYC 214 Applications of Statistics
 PSYC 317 Experimental Methods

In addition to the PSYC courses required for the B.S. in psychology, the student must take the following courses:

BIOL 101 and BIOZ 101L Biological Concepts and Laboratory and either
 BIOL/ENVS 103 Environmental Science or BIOL 201 Human Biology

Standard curriculum

In addition to the core, the student must complete PSYC 451 History of Psychology and at least one course from each of the following four content areas:

Developmental

PSYC 301 Child Psychology or PSYC 304 Life Span Developmental Psychology (cannot take both for degree credit)
 PSYC 302 Psychology of Adolescence
 PSYC 306 Psychology of Adult Development
 GRTY 410 Introduction to Gerontology

Social/personality

PSYC 309 Personality
 PSYC 321 Social Psychology
 PSYC/AFAM 322 Personality and Behavior of the African American
 PSYC 323 Interpersonal Relations
 PSYC/RELS 333 Psychology and Religious Experience
 PSYC/WMNS 335 Psychology of Women
 PSYC/SOCY 341 Group Dynamics

Physiological/learning

PSYC 401 Physiological Psychology
 PSYC 406 Perception
 PSYC 410 Principles of Learning and Cognition

Self-development/applied psychology

PSYC 303 Personal Adjustment
 PSYC 308 Stress and its Management
 PSYC 310 Industrial Psychology

PSYC 318 Principles of Psychological Tests and Measurements
 PSYC 340 Introduction to the Helping Relationship
 PSYC 407 Psychology of the Abnormal
 PSYC 412 Health Psychology
 PSYC 426 Child Psychopathology

Concentrations in psychology

In addition to the core and instead of the standard curriculum, after successful completion of PSYC 101 and PSYC 214 with a minimum of a “C” grade in each, a student may apply in writing to the department’s director of undergraduate studies to pursue one of the following specialized concentrations in psychology. The pre-graduate school concentration provides a broad training in the core areas of scientific psychology intended to prepare students for the GRE and successful application to graduate school. The other concentrations represent curricula focused on special strengths of the Department of Psychology, and may prepare the student for psychological work not requiring the Ph.D.

Pre-graduate school concentration

An overall GPA of 3.25 and a psychology GPA of 3.25 are required to successfully complete this concentration, which consists of 34 credits.

PSYC 304 Life Span Developmental Psychology
 PSYC 318 Principles of Psychological Tests and Measurements
 PSYC 321 Social Psychology
 PSYC 401 Physiological Psychology
 PSYC 407 Psychology of the Abnormal
 PSYC 410 Principles of Learning and Cognition
 PSYC 451 History of Psychology
 PSYC 492, 493 or 494 (three credits)

Life science concentration

An overall GPA of 2.50 and a psychology GPA of 2.50 and concentration courses are required to successfully complete this concentration. Note: If you follow this concentration but at the time of graduation do meet the 2.50 GPA requirements, you may not be able to graduate under the standard curriculum because you may not have taken PSYC 451 or courses in the developmental and social/personality content areas. This concentration consists of 34 credits.

BIOL 102 Science of Heredity (satisfies biology core requirement)
 BIOL 445 Neurobiology and Behavior
 PHTX 400 Drugs and their Actions
 PSYC 401 Physiological Psychology
 PSYC 406 Perception
 PSYC 410 Principles of Learning and Cognition
 PSYC 412 Health Psychology
 PSYC 492, 493 or 494 (three credits)

Applied psychology concentration

An overall GPA of 2.50 and a psychology GPA of 2.50 and concentration courses are required to successfully complete this concentration. Note: If you follow this concentration but at the time of graduation do meet the 2.50 GPA requirements, you may not be able to graduate under the standard curriculum because you may not have taken PSYC 451 or courses in the physiological/learning content areas. This concentration consists of 31 credits.

PSYC 304 Life Span Developmental Psychology
 PSYC 308 Stress and its Management
 PSYC 309 Personality
 PSYC 318 Principles of Psychological Tests and Measurements
 PSYC 340 Introduction to the Helping Relationship
 PSYC 407 Psychology of the Abnormal
 PSYC 492, 493 or 494 (three credits)

Urban psychology concentration

An overall GPA of 2.50 and a psychology GPA of 2.50 and concentration courses are required to successfully complete this concentration. Note: If you follow this concentration but at the time of graduation do meet the 2.50 GPA requirements, you may not be able to graduate under the standard curriculum because you may not have taken PSYC 451 or courses in the physiological/learning content areas. This concentration consists of 34 credits.

POLI 321 City Politics
 PSYC 302 Psychology of Adolescence
 PSYC 304 Life Span Developmental Psychology
 PSYC/AFAM 322 Personality and Behavior of the African American
 PSYC 340 Introduction to the Helping Relationship
 PSYC 493 or 494 (three credits)
 RELS 340/INTL 341 Global Ethics and the World’s Religions
 URSP 116 Introduction to the City

Careers in psychology

Students choose to major in psychology for many reasons. Most often they select the major for a combination of wanting to help other people and of desiring to learn the scientific principles of behavior. Students in the program expect to receive career counseling and information on graduate and/or professional school training. The department has developed methods to meet these expectations.

PSYC 201 Career Development in Psychology, covers specialty fields within the discipline and the career opportunities available to degree holders. This course also discusses graduate and professional school options open to the graduate of the program.

The Career Information and Advising Center has been established by the department to provide individual and group counseling services for undergraduate majors with career concerns. Specific career and academic information also is available at this center. Students are shown how to choose appropriate electives for bachelor's-level careers in mental health services, personnel, management, corrections, rehabilitation, health services, education and laboratory research.

Faculty advisers specialize in career advising and professional development. The faculty adviser's role is to consult with students about various areas of professional opportunity, explain the role of graduate education and suggest general areas of study outside of the psychology department that might fit the student's interests and goals. Faculty adviser assignments are made through the Psychology Career Information and Advising Center.

PSYC 493 Fieldwork: Human Services and PSYC 494 Research Internship in Psychology are two of the upper-level electives specifically designed to enhance the psychology major's career pursuits for either employment or graduate-level training. Both of these courses provide opportunities for direct, practical experience with close supervision.

The Department of Psychology offers service-learning courses that involve participation in an organized community service experience. Through classroom discussions and written assignments, students relate theories and research presented in class with community experiences. Through service-learning courses, students:

- gain an understanding and appreciation of the community and its diverse people,
- explore an area of study or a career option, and
- critically reflect on their values and responsibilities as citizens.

Some service-learning courses require a two-semester commitment. In many cases, a service-learning course will meet the urban experience general education requirement (refer to the Schedule of Classes).

Graduate school in psychology

The Career Information and Advising Center maintains up-to-date information from the American Psychological Association and other resources on admission requirements and programs at a variety of graduate schools.

Students considering graduate school should consult their faculty advisers and the Career Information and Advising Center early in their studies at VCU. Specific courses in psychology are strongly recommended for many graduate programs, so careful and early planning is important.

Referrals to other campus services are made through the center to help the student with other professional school options and their respective entrance requirements. Those options are pre-law, pre-med, Master of Social Work, Master of Business Administration and others.

Honors in psychology

Psychology majors in the Bachelor of Science program can earn honors in psychology. Any student is eligible to join the program if he or she declares a major in psychology and meets one of the three following entrance requirements.

Entering freshmen must have combined SAT scores of at least 1250 and rank in the top 15 percent of their graduating high school class. Students transferring to VCU must have a 3.5 cumulative GPA in at least 30 college semester hours of credit and have no more than 60 college semester hours of credit. Continuing VCU students must have a 3.5 cumulative GPA and have taken a minimum of 20, but no more than 60, credits at VCU. Promising students who do not quite meet these requirements can be considered for program membership by writing to the director of the psychology honors program.

Once admitted to the program, the honors student must fulfill three basic program requirements.

First, students must take a minimum of nine credits in psychology courses that are designated as honors sections. PSYC 497, 498 and 499 may not be used to fulfill this requirement.

Next, honors students must enroll for a minimum of three credits in PSYC 494 Research Internship in Psychology, no later than the fall semester of their junior year.

Finally, all students must complete PSYC 497 Honors Seminar in their junior year and complete PSYC 498-499 Honors in Psychology in their senior year.

A student in the program will graduate with honors in psychology if he or she has completed all course requirements with a "B" or better; has maintained a GPA of 3.5, overall and in psychology; and has completed all other requirements for the Bachelor of Science degree.

Extended Teacher Preparation Program

Psychology majors interested in teaching careers in early, middle, secondary or special education can enroll in the Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in psychology and a master's degree in teaching. For more information about this program administered jointly by the School of Education and the College of Humanities and Sciences, contact the School of Education's Office of Student Services.

Minor in psychology

A minor in psychology consists of 18 credits in psychology, including PSYC 101 Introduction to Psychology; one course from each of the four basic areas: developmental, social/personality, physiological/learning, and self-development/applied psychology; and one additional course. PSYC 201 Career Development in Psychology cannot be used to meet this requirement. At least nine of the 18 credits must be taken at VCU.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in psychology. A full description of the program appears in the "Division of Students Affairs and Enrollment Services" chapter of this bulletin.

Courses in psychology (PSYC)

PSYC 101 Introduction to Psychology

Semester course; 3 lecture and 1 computer-assisted instructional hour. 4 credits. A survey of the basic principles, methods of investigation and fields of study and application. Includes individualized application of principles and methods in computerized learning activities. A prerequisite for upper-level work in the field of psychology.

PSYC 201 Career Development in Psychology

Semester course; 2 lecture hours. 2 credits. Prerequisite: PSYC 101. Introduction to the discipline of psychology and the career alternatives available in various specialties. Self-assessment, career decision-making skills, educational program planning methods will be covered. Special topics will include graduate/professional school options, opportunities for minority students and job search strategies for the B.A. or B.S. psychology major.

PSYC 214 Applications of Statistics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PSYC 101 and STAT 210. Frequency distributions, measures of central tendency and variability; sampling, probability, correlation and significance tests as applied in psychological data.

PSYC 301 Child Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study is made of the growth and development of the child until puberty. Childlike is viewed in terms of physical, mental, social, emotional and educational factors. (PSYC 304 Life Span Developmental Psychology may not also be taken for credit.)

PSYC 302 Psychology of Adolescence

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101 and either PSYC 301 or PSYC 304. A study of mental, moral, social and physical development from puberty to maturity viewed as in child psychology. Designed for secondary school teachers, youth leaders and professional psychologists.

PSYC 303 Personal Adjustment

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Surveys major theories of personality as a basis for studying theory, research and intervention into areas that require personal adjustment. Such areas include sense of self, stress and coping, work and career and several varieties of interpersonal relationships. Positive adjustment and growth as well as problems are discussed.

PSYC 304 Life Span Developmental Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Reviews the basic concepts and principles of physical, cognitive and social development at each major stage of life—prenatal, infancy, toddlerhood, preschool, middle childhood, adolescence, adulthood and old age. Consideration is given to the study of development at each stage of life and to different theoretical explanations for development. PSYC 301 Child Psychology may not also be taken for credit.

PSYC 305/EDUS 305 Educational Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. The application of psychological principles to the teaching-learning process with special emphasis on theories of learning and development.

PSYC 306 Psychology of Adult Development

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101 and either PSYC 301 or PSYC 304. The life stages and transitions of the young adult, middle age and young-old phases of the life cycle are considered, following a review of methods of research within life-span development psychology. Topics include the impact of events such as birth of the first child, job relocation, mid-life re-evaluation and anticipated retirement.

PSYC 308 Stress and its Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Physiological and psychological aspects of stressors and the stress response. Review of principles, research and methods of stress management, such as relaxation, self-suggestions, meditation and biofeedback.

PSYC 309 Personality

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. The study of the various approaches to understanding human behavior in terms of personality theory. Various theories will be examined for commonality and uniqueness in assumptions, dynamics and development of personality.

PSYC 310 Industrial Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Application of psychological principles and techniques to problems in personnel management and human engineering; recruitment, selection, training and placement in industry; criteria in testing and test development; morale evaluation and improvement, employee counseling; work-management communications; human engineering in equipment design, quality control, working conditions and safety.

PSYC 317 Experimental Methods

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: PSYC 101 and PSYC 214. Introduction to experimental procedures and laboratory techniques in psychology. Demonstrations and experiments in sensation, perception, learning, emotion and motivation.

PSYC 318 Principles of Psychological Tests and Measurements

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101 and PSYC 214. Concepts in psychological measurement and a survey of commonly used tests; testing procedures and rationale underlying these tests; tests of intelligence, aptitude, achievement, interest and personality critically examined, procedures described for selecting and evaluating specific group tests in these areas.

PSYC 321 Social Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Survey theory and research in social psychology. Topics include interpersonal and social influence processes, attitudes and social cognition, the impact of personality on social behavior, conformity, leadership and small group behavior.

PSYC 322/AFAM 322 Personality and Behavior of the African American

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. A study of personality factors such as motivation, ego-functioning and the socialization processes, with special emphasis on living conditions of African Americans.

PSYC 323 Interpersonal Relations

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Analyzes human relations from various theoretical perspectives. Typical topics include the effects of attraction, friendship, love and dependency on relationships; the evolution of relationships from initiation through termination. Strategies for increasing effectiveness of communication between individuals also are addressed.

PSYC 333/RELS 333 Psychology and Religious Experience

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Religious belief and experience as viewed by major psychological theorists. How psychological methodology has been used to study religious experience. Topics include personality factors and development, conversion experiences, religious experiences and mental health and human values.

PSYC 335/WMNS 335 Psychology of Women

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Overview of issues in psychology relevant to women. Topics include: research methods of women's issues; sex-role socialization; women and hormones; psychological androgyny; personality theory and counseling strategies for women; women and language; women and violence; and rape and abuse.

PSYC 340 Introduction to the Helping Relationship

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Overview to the dynamics of communication in a helping relationship. Didactic material includes the principles of empathy, nonverbal behavior, problem solving, crisis intervention and interview techniques. Basic paraprofessional counselor skills will be demonstrated and practiced through structured exercises.

PSYC 341/SOCY 341 Group Dynamics

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself.

PSYC 401 Physiological Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Data from the fields of anatomy and physiology are presented, and their implications for psychology are discussed. The central nervous system, internal environment, vision, audition, reflexes, emotion, learning behavior disorders and their physiological components. Behavior of the human organisms is studied from the biopsychological point of view.

PSYC 404/SOCY 404 Social Psychology of Emotions

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101, SOCY 101. An examination of the social shaping of emotion as well as its function in maintaining the social process. Cross-cultural uniformities and diversity in basic emotions and their expression are addressed as well as selected social psychological theories of emotions.

PSYC 406 Perception

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Perception of information from sensory systems with concentration on vision and hearing. Research and theories on how we learn and judge color, form, movement, depth and how individuals integrate these in object identification.

PSYC 407 Psychology of the Abnormal

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Development of personality is discussed, with emphasis on factors leading to maladjustment. Lectures and reading cover the symptom groups of

emotional disorders of both psychological and organic origin. Methods of assessing and treating these disorders are surveyed.

PSYC 410 Principles of Learning and Cognition

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Comprehensive treatment of learning and cognition with emphasis on humans, from behavioral, cognitive, biological and developmental viewpoints. Topics include conditioning, information processing, memory, sociobiology and cognitive and moral development.

PSYC 412 Health Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101, PSYC 308 or PSYC 401, or consent of instructor. Application of the principles and techniques of psychology to the field of medicine, to health maintenance and to illness. The integration of theoretical, research and applied issues is emphasized in the analysis of such topics as psychological/behavioral factors contributing to and protecting against physical illness (stress, smoking, exercise), factors relating to treatment and recovery (coping, treatment compliance), psychological problems resulting from illness and injury, and specific techniques and problem areas in health psychology (such as biofeedback, pain management, pediatric psychology, geropsychology, rehabilitation psychology and lifestyle change.)

PSYC 414/WMNS 414 Psychology of Women's Health

Semester course; 3 lecture hours. 3 credits. Overviews the psychological research on women's health. Topics include health behavior change, personality and individual differences, cognitive factors, disease-specific behaviors and interventions.

PSYC 426 Child Psychopathology

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101 and either PSYC 301 or PSYC 304. Principal childhood behavioral abnormalities. A review of causes, assessment and diagnostic methods, and treatment, intervention and prevention approaches.

PSYC 451 History of Psychology

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101, junior or senior standing. Traces the history of ideas about mind and behavior as they relate to the theory and practice of psychology.

PSYC 491 Topics in Psychology

Semester course; 3 lecture hours. 3 credits. Maximum total of six credits in topics courses. Prerequisite: PSYC 101. An in-depth study of selected topics and issues in psychology. See the Schedule of Classes for specific topics to be offered.

PSYC 492 Independent Study

Semester course; variable; 1, 2 or 3 credits per semester. Maximum of six credits for all independent study courses. PSYC 492; PSYC 493; PSYC 494 may be repeated for a total of six credits but a maximum of 12 credits total for all three courses. Prerequisite: PSYC 101. Open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. Independent study is defined as student-conceived and initiated readings or research project which is supervised by a psychology faculty member. An oral examination or written, comprehensive paper is required at the end of the semester. PSYC 492, PSYC

493 and PSYC 494 may be repeated for a total of six credits but a maximum of 12 credits total for all three courses is allowed.

PSYC 493 Fieldwork: Human Services

Semester course; 3 credits. Prerequisite: Permission of instructor. Students are placed in an agency, which will provide supervised work experience in various aspects of helping other people. The setting might be a government or private community agency, or a corporation, depending on the student's goals. The student works eight hours per week at the placement site, attends several group discussion sessions during the semester and completes written assignments. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment. PSYC 492, PSYC 493 and PSYC 494 may be repeated for a total of six credits but a maximum of 12 credits total for all three courses is allowed.

PSYC 494 Research Internship in Psychology

Semester course; variable; 1, 2 or 3 credits per semester. May be repeated for a maximum of six credits with adviser's approval. PSY 492; PSY 493; PSY 494 may be repeated for a total of six credits but a maximum of 12 credits total for all three courses. Prerequisites: PSYC 101 and permission of faculty research supervisor must be obtained prior to registration. PSYC 214, 317 or permission of supervisor. Students will work on various phases of a research project (design, data collection, data analysis, manuscript writing) under a psychology faculty member's close supervision. This course is designed to enhance the psychology major's career pursuits for either graduate-level training or post-baccalaureate employment. PSYC 492, PSYC 493 and PSYC 494 may be repeated for a total of six credits but a maximum of 12 credits total for all three courses is allowed.

PSYC 497 Honors Seminar

Semester course; 2 lecture hours. 2 credits. Prerequisites: PSYC 101 and junior standing and admission to the Honors in Psychology Program. Pre- or corequisite: PSYC 317. An introduction to the scientific process, particularly as applied to the field of psychology. Prepares students for future research experience and surveys current research, opportunities for post-graduate study and professional development in psychology.

PSYC 498-499 Honors in Psychology

Continuous course; 3 lecture hours. 2-3 credits. Prerequisites: PSYC 101 and consent of undergraduate committee of the psychology department. Discussion will include advanced research strategies, related professional issues and topics determined by the student's interest. Students are required to develop and complete a senior honors thesis, which will be the major emphasis of the second semester.

Interdisciplinary Degree Program in Science

Charlene D. Crawley

Coordinator (1995)
B.S. 1978 Virginia Commonwealth University
M.S. 1981 Virginia Commonwealth University
Ph.D. 1986 University of Delaware

The interdisciplinary program in science provides students with a broad, yet fundamental, grounding in the sciences. In addition to the spectrum of required mathematics and science courses, students select a concentration from biology, chemistry, general science, mathematics or physics. The mathematics and general science tracks are particularly suited for students interested in careers in early or middle school science or mathematics education.

Students completing this curriculum earn a Bachelor of Science degree in science. For information concerning the program and advising, contact the program coordinator. Selected faculty in biology, chemistry, mathematical sciences and physics are the academic advisers for this program.

Extended Teacher Preparation Program

Bachelor of Science in Science majors interested in teaching careers in early, middle or special education can enroll in the Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in science and a master's degree in teaching. For more information about this program jointly administered by the School of Education and the College of Humanities and Sciences, contact the School of Education's Department of Teaching and Learning.

Degree requirements – Bachelor of Science in Science

The Bachelor of Science curriculum in science requires a minimum of 120 credits.

Along with the general education requirements of the undergraduate programs and the College of Humanities and Sciences for a Bachelor of Science degree, this curriculum requires 28 to 32 credits in core science and mathematics courses (see chart) and 30 to 36 credits in one of the following tracks: biology, chemistry, general science, mathematics or physics. In preparation for the required mathematical sciences courses, all students must take the Mathematics Placement Test.

Core course requirements

See chart for beginning core courses in the program.

A grade of "C" or higher is required in each prerequisite course: CHEM 100 (if required through placement test), CHEM 101, CHEM 102, CHEM 301 and CHEM 302.

College of Humanities and Sciences

A grade of “C” or higher is required in BIOL 151, 152, BIOZ 151L, 152L, and BIOL 218 before enrollment in advanced BIOL courses.

Choose one of the following tracks:

Biology track

BIOL 152 and BIOZ 152L Introduction to Biological Science and Laboratory II	4	credits
BIOL 218 Cell Biology	3	
BIOL 310 and BIOZ 310L Genetics and Laboratory	4	
BIOL 317 Ecology	3	
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II	4	
GEOG/ENVS 105 and GEOZ/ENVZ 105L Physical Geology and Laboratory	4	
PHYS 202 General Physics or PHYS 208 University Physics II	4 or 5	
One upper-level animal and one upper-level plant course, with laboratories	8	
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	34 or 35	

Chemistry track

BIOL 152 and BIOZ 152L Introduction to Biological Science and Laboratory II	4
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BIOL 317 Ecology	3
CHEM 102 and CHEZ/FRSZ 102L General Chemistry and Laboratory II	4
CHEM 301-302 Organic Chemistry	6
CHEZ 301L and 302L Organic Chemistry Laboratory I and II	4
CHEM 309 and CHEZ 309L Quantitative Analysis and Laboratory	4
GEOG/ENVS 105 and GEOZ/ENVZ 105L Physical Geology and Laboratory	4
PHYS 202 General Physics or PHYS 208 University Physics II	4 or 5
	<hr/>
	33 or 34

General science track

BIOL 315/ENVS 314/INTL 314 Man and Environment, BIOL 332/ENVS 330 Environmental Pollution or BIOL 317 Ecology	3
ENVS/GEOG 401 Meteorology and Climatology	3
ENVS/GEOG 411 Oceanography	3
PHYS 103 and PHYZ 103L Elementary Astronomy and Laboratory	4

GEOG/ENVS 105 and GEOZ/ENVZ 105L Physical Geology and Laboratory or GEOG 204 and GEOZ 204L Physical Geography and Laboratory	4
A second introductory course in two of the following three areas: biology, chemistry or physics	8-10
Two additional courses at the 200-level or higher in mathematics, science, teaching mathematics and/or science with adviser's approval (Recommended upper-level courses are BIOL 320, ENVS 335, HUMS 391 [Science Education in Urban Environment topic only] EDUS 300 and/or EDUS 301 may be used if student is preparing for teaching.)	6
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	31 to 33

Mathematics track

MATH 255 Introduction to Computational Mathematics	3
MATH 554 Using Technology in the Teaching of Mathematics	3
MATH 131 Introduction to Contemporary Mathematics	3
MATH 211 Mathematical Structures	3
MATH 303 Investigations in Geometry	3

Science program core course requirements

Core courses	Biology track	Chemistry track	Mathematics track	General science track	Physics track
Introductory biology (4-5 credits)	BIOL 151 with laboratory	BIOL 151 with laboratory	BIOL 101, 102, 103* or 151 with laboratory	BIOL 101, 102, 103 or 151 with laboratory	BIOL 101, 102, 103 or 151 with laboratory
Introductory chemistry (4 credits)	CHEM 101 with laboratory	CHEM 101 with laboratory	CHEM 101 or CHEM 110* with laboratory	CHEM 101 or CHEM 110* with laboratory	CHEM 101 with laboratory
Introductory physics (4-5 credits)	PHYS 201 or 207	PHYS 201 or 207	PHYS 101, PHYZ 101L or PHYS 107*, or 201, or 207	PHYS 101, PHYZ 101L or PHYS 107, or 201	PHYS 207
Science (3 credits)	INSC 300 or ENVS/ GEOG 401	INSC 300 or ENVS/ GEOG 401	INSC 300	INSC 300	INSC 301 or ENVS/ GEOG 401
Additional science course (3 credits)	INSC 301 or ENVS/ GEOG 411	INSC 301 or ENVS/ GEOG 411	INSC 301	INSC 301	INSC 301 or ENVS/ GEOG 411
Mathematics (by placement or 4 credits)	MATH 151	MATH 151	MATH 151	MATH 151	MATH 151
Statistics (3 credits)	STAT 208 or 210	STAT 208 or 210	STAT 208 or 210	STAT 208 or 210	satisfied by track requirements
Additional mathematics course (3-4 credits)	MATH 200 or STAT beyond 210	MATH 200	MATH 200 or STAT 314	MATH 200	MATH 200

* Recommended among options

MATH 310 Linear Algebra	3
MATH/OPER 327 Mathematical Modeling	3
MATH 351 Applied Abstract Algebra	3
Two additional courses at the 200-level or higher in mathematics, science, teaching mathematics and/or science with adviser's approval. (EDUS 300 and/or EDUS 301 may be used if student is preparing for teaching.)	6

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Physics track

MATH 201 Calculus and Analytical Geometry	4
MATH 301 Differential Equations	3
MATH 307 Multivariate Calculus	3
PHYS 208 University Physics II	5
PHYS 301 Classical Mechanics I	3
PHYS 320 Modern Physics	3
PHYZ 320L Modern Physics Laboratory	1
PHYS 450 Senior Physics Laboratory (WT)	3
An additional nine credits taken from any of the following courses:	9
CHEM 102 General Chemistry	
CHEZ/FRSZ 102L General Chemistry Laboratory	
MATH/OPER 327 Mathematical Modeling	
PHYS/MHIS 307 The Physics of Sound and Music	
PHYS 103 Elementary Astronomy	
PHYZ 103L Elementary Astronomy Laboratory or any course allowable for the Bachelor of Science in Physics	

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Courses in interdisciplinary science (INSC)**INSC 300 Experiencing Science**

Semester course; 5 studio hours. 3 credits. Prerequisites: Four credits in biology, four credits in physical science, three credits in mathematics, and STAT 208 or 210. Study of the methods and processes used by scientists in investigations. Guided, active replication of great discoveries in major scientific disciplines in physical science, life science and earth science.

INSC 301 Investigatory Mathematics and Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: Four credits in biology, four credits in physical science, three credits in mathematics, and STAT 208 or STAT 210. Students investigate real world science problems, formulate model solutions to the problems, produce project reports and present their solutions to class. Problems selected from areas including water quality, epidemics and spread of diseases, heat loss and gain, genetics and drugs in the body.

Science

For interdisciplinary science courses, see INSC in these listings.

Social Sciences**J. Sherwood Williams**

Professor, Sociology and Anthropology, and Coordinator, Social Sciences (1971)
B.A. 1964 California State College, Long Beach
M.A. 1968 California State College, Los Angeles
Ph.D. 1972 Washington State University

Courses in social sciences are offered by a number of academic departments. However, these courses have been grouped together.

Courses in social science (SOCS)**SOCS 291 Issues in Social Science**

Semester course; variable; 1-3 credits per semester. Maximum total of six credits. An interdisciplinary course structured around social issues pertinent to today's society. See the Schedule of Classes for particular issues to be covered and the semester credit for which each course will be offered.

SOCS 303 Marriage and Family Relationships

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of instructor. Marriage and the family in contemporary society. Topics discussed will include the effects of masculine and feminine roles on marital and parent-child relationships, how role problems are resolved, sexual adjustments, financial adjustment, family planning and retirement.

SOCS 330 The Psychology and Sociology of Death

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101 or SOCY 101. An interdisciplinary study of the encounter with death, death and personality, the organizational processing of death and demographic regularities of dying. Sociologists and psychologists jointly teach the course.

SOCS 340 Human Sexuality

Semester course; 3 lecture hours. 3 credits. A study of the variety of the forms, sources and consequences of human sexual behaviors and the attitudes, beliefs and values associated with them. The data and its analysis are directed to the significance of sex in human experience.

SOCS 350 The Construction of Culture

Semester course; 3 lecture hours. 3 credits. An examination, using methods from several disciplines, of the ways in which human beings construct the shared meanings that constitute culture.

SOCS 389 AIDS: Myths and Realities

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Presents the students with the fundamentals of infectious disease, immunology and virology as they apply to HIV disease. Students will trace the psychosocial impact the HIV pandemic has had on society since the early 1980s, and will explore the future possibilities for those who are HIV infected and/or HIV affected.

Department of Sociology**J. Sherwood Williams**

Professor and Department Chair (1971)
B.A. 1964 California State College, Long Beach
M.A. 1968 California State College, Los Angeles
Ph.D. 1972 Washington State University

The Bachelor of Science curriculum in sociology seeks to ensure that each student develops a solid foundation in the basic principles, theories and techniques of analysis in sociology. It also encourages students to pursue an interdisciplinary approach by incorporating course credit from closely related subject areas in other departments. Since students majoring in sociology vary in their interests and career goals, the curriculum allows for a great deal of flexibility in developing individual courses of study. Students who are interested in pursuing graduate studies in sociology will usually take more than the minimum number of upper-level courses. The department provides opportunities for involvement in faculty research through its course offerings, which include independent study, internships and honors research.

Degree requirements – Bachelor of Science in Sociology

The Bachelor of Science curriculum in sociology requires a minimum of 120 credits, with at least 31 of those credits in sociology and other approved courses. At least 24 upper-level (300-400) credits are required. SOCY 101 General Sociology, SOCY 205 Introduction to Social Science Computing, SOCY 320 Research Methods in the Social Sciences, and SOCY 402 Sociological Theory are required core courses in the sociology major.

To fulfill the general education requirements of the College of Humanities and Sciences, students seeking a Bachelor of Science in Sociology should complete STAT 210 Basic Practice of Statistics. At least 15 credits of the required 24 upper-level credits must be in upper-level sociology courses. The remaining nine required upper-level credits may be chosen from sociology courses or from the following approved list of related courses — six may be taken from ANTH or SOCS courses; three may be taken from any of the remaining subject areas. (This list is revised periodically to reflect changes

in course offerings. Check the department Web site for updated versions.)

Anthropology

ANTH 301/BIOL 341 Human Evolution (WI)
 ANTH/INTL 305 Comparative Perspectives on Cultures and Societies
 ANTH/INTL 415 Economic Anthropology
 ANTH/RELS/INTL 425 Religion, Magic and Witchcraft (WI)

Criminal justice

CRJS 355 Foundations of Criminal Justice
 CRJS/WMNS 382 Women in the Justice System

Geography

GEOG/URSP 306 Urban Economic Geography (WI)
 GEOG/ANTH 312 History of Human Settlement
 GEOG/INTL/URSP 340 World Cities Outside of North America

Political science

POLI 303 Public Opinion, Polling and the Media
 POLI/AFAM/WMNS 318 Politics of Race, Class and Gender
 POLI/INTL 358 Concepts of Comparative Government
 POLI/INTL 365 International Political Economy (WI)

Psychology

PSYC 310 Industrial Psychology
 PSYC 321 Social Psychology
 PSYC 323 Interpersonal Relations

Religious studies

RELS/INTL 311, 312 Religions of the World
 RELS 334 Religion in Contemporary America

Social science

SOCS 303 Marriage and Family Relationships
 SOCS 340 Human Sexuality
 SOCS 389 AIDS: Myths and Realities

Urban studies

URSP 304 Urban Social Systems
 URSP/GEOG 306 Urban Economic Geography
 URSP 315 The Evolution of American Cities
 URSP 316 Urban Life in Modern America
 URSP/GEOG/INTL 340 World Cities Outside North America
 URSP 350/FRLG 345/INTL 345 Great Cities of the World

Minor in sociology

A sociology minor shall consist of 18 credits including SOCY 101 General Sociology and SOCY 402 Sociological Theory. At least 12 credits must be upper-level (300-400) sociology courses. The remaining three credits may be any sociology, social science or anthropology course.

Undergraduate topics courses

Topics courses in sociology (SOCY 391) are an integral part of the program and provide a rare opportunity for the advanced student. Generally these courses are restricted to a small number of students who share specialized interests in a topic that is either too advanced or too limited in its general appeal to justify its inclusion as a standard offering. At least one such seminar is offered each semester and the topics course can be repeated up to a maximum of 18 credits as long as there is no duplication of the topics.

Independent study

This course (SOCY 492) is designed for juniors and seniors capable of doing independent work on selected topics under the direction of specific faculty. For example, if a course is not regularly offered in a specific area of interest to a particular student, and if there are not enough students in the topics course, the student may, with the permission of the instructor, enroll in independent study.

Students may earn a maximum of 12 credits in departmental independent study courses, but may not enroll for more than six credits per semester. All students entering these courses must have completed a minimum of 12 credits in sociology and achieved an overall sociology GPA of at least 2.7.

Honors in sociology

Majors in the Department of Sociology may earn a Bachelor of Science degree with honors in sociology. The Sociology Honors Program is available to outstanding senior majors and involves the preparation of a senior thesis during one of the last two semesters of the baccalaureate degree program. In order to participate in the program, students must meet program entrance requirements, identify a project mentor and receive approval for a project proposal. The project may involve any recognized sociological topic, theory or method that promises to enhance the honor student's disciplinary perspective, skills and creativity. The project may involve an extension of work initiated in a course, an entirely new project or a collaborative project with the faculty mentor. If the project is an extension of the work initiated in a course or developed collaboratively with the mentor,

the independent, separate, substantial development of the topic in the thesis should be evident. The thesis should reflect work of high quality for a senior-level course. The Honors Program Committee will award honors following acceptance of the thesis.

Honors eligibility criteria and application procedure

Students majoring in the Department of Sociology are eligible to participate in the departmental honors program if they have maintained a 3.0 overall GPA and a 3.3 GPA in the major. Candidates should apply to the Sociology Honors Program Committee. Application materials consist of transcripts documenting the required GPAs, a description of the proposed project, which should not exceed three typed pages, and the name of the faculty member who has agreed to act as project mentor. Application must be made and project approval received in the semester preceding the one in which the research project will be conducted. The committee will review the application materials, meet with the candidate to discuss the project proposal and render an admission decision. Once admitted, program participants will enroll in an honors research course. The course may be included in the required hours for the major.

Submit applications to the Sociology Honors Program Committee, Department of Sociology, Virginia Commonwealth University, Richmond, VA 23284-2040. For further information, contact Dr. John Mahoney, director of undergraduate studies.

Award of honors

The completed senior thesis will be submitted to the Honors Program Committee following its acceptance by the faculty mentor and confirmation that the candidate has maintained the requisite grade-point averages. Upon submission of the thesis, the student will make an oral presentation to the committee summarizing the research procedures and findings. The committee will then evaluate the thesis for the award of honors. For acceptance, the thesis must be evaluated as deserving of a grade of "A" in the Honors Research Course. Acceptance of the thesis will earn an Honors Program Certificate from the department and notation of the student's standing as an

honors graduate on the final grade transcript. Honors students also will receive preferential consideration as applicants to the sociology master's degree program.

Accelerated Bachelor of Science and Master of Science Program

The accelerated B.S. and M.S. program allows qualified students, with a major in sociology, to earn both degrees in a minimum of five years by completing approved graduate courses during the senior year of their undergraduate program. The program will provide students with the opportunity to expand and deepen their knowledge of sociology, enhance their credentials for the job market and/or to prepare for further professional education. Students in the program may count up to 12 hours of graduate courses toward both the B.S. and M.S. degrees. Thus, the two degrees may be earned with a minimum of 144 hours instead of the 156 required if the degrees are pursued separately.

The program is restricted to students who have demonstrated a clear interest in sociology. Minimum qualifications for admittance to the program include completion of 90 undergraduate credit hours with an overall GPA of 3.0, and a minimum of nine credit hours in sociology with a GPA of 3.3. Prior to being formally considered for admittance and before enrolling in graduate courses, the student must complete the graduate school application, submit GRE general aptitude scores and supply supporting information required for admission. All persons admitted to the program must meet the graduate student standards of performance, e.g., maintain a 3.0 GPA, and satisfactorily complete all requirements for the degree (see the Graduate and Professional Programs Bulletin for further detail).

The graduate studies director will provide guidance of students in this program. Students who are interested in this program should consult with the director of graduate studies or the director of undergraduate studies before they have completed 90 credits. Both the undergraduate and graduate studies directors may be contacted for more information about admission procedures.

Requirements for the Bachelor of Science in Sociology include the completion of a minimum of 120 credits. Students in the

accelerated program may take up to six graduate sociology credits in each of the final two semesters of their undergraduate course work. These courses are shared credits with the graduate program, meaning that they will be applied to both undergraduate and graduate degree requirements. A maximum of 12 graduate credits may be taken prior to completion of the baccalaureate degree.

The Bachelor of Science degree will be awarded when the student has completed all requirements for the undergraduate degree, which may include the 12 graduate sociology credits. The graduate sociology courses that may be taken, once a student is admitted to the program, are:

- SOCY 502 Contemporary Sociological Theory (may be used to meet the undergraduate major requirement for SOCY 402 Sociological Theory and is a required course in the graduate program)
- SOCY/STAT 508 Introduction to Social Statistics (recommended and may fulfill elective requirement in the undergraduate major)
- SOCY 601 Advanced Methods of Social Research – Prerequisite SOCY/POLI 320 (a required course in the graduate program and may fulfill elective requirement in the undergraduate major)
- SOCY/STAT 608 Statistics for Social Research (a required course in the graduate program and may fulfill elective requirement in the undergraduate major)
- Other SOCY graduate courses, with the approval of the graduate studies director, may serve as an elective requirement for the M.S. degree and an elective for the undergraduate major.

All accelerated program students must have their schedules approved by the graduate studies director prior to registration.

Master of Science in Sociology Program

For information about graduate work in sociology, see the Graduate and Professional Programs Bulletin.

Extended Teacher Preparation Program

Sociology majors interested in teaching careers in early or special education can enroll in the Extended Teacher Preparation Program that results in the simultaneous awarding of a bachelor's degree in sociology and a master's degree in teaching. For more information about this extended program administered jointly by the School of Education and the College of Humanities and Sciences, contact the School of Education's Office of Student Services.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing undergraduate degrees in sociology. A full description of this program appears in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in sociology (SOCY)

SOCY 101 General Sociology

Semester course; 3 lecture hours. 3 credits. An introduction to the study of human society. The basic concepts of society and culture and their relationships to each other are studied and then used to analyze the major social institutions.

SOCY 104/AFAM 104 Sociology of Racism

Semester course; 3 lecture hours. 3 credits. The course will explore the direct and indirect ways in which racial attitudes are acquired, their effect on the individuals and society, and the institutional and ideological manifestations of racism as a "faith system," as exploitation, and as a form of human conflict. The central focus of interest will be on black-white relationships.

SOCY 205/POLI 205 Introduction to Social Science Computing

Five-week course; 4 lecture/laboratory hours. 1 credit. An introduction to the use of SPSS for storage, retrieval and exploration of social science data. Required of all sociology and anthropology majors concentrating in sociology.

SOCY 206/AFAM 206/WMNS 206 African American Family Relationships

Semester course; 3 lecture hours. 3 credits. Focuses on the African American family from the 1940s to the present. Examines the values and the interpersonal/role relationships that are involved in forming and maintaining African American families in the contemporary United States. Topics include dating and sexual relationships, marital relationships, parent-child relationships and relationships with members of the extended family.

SOCY 302 Contemporary Social Problems

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. The examination from a sociological perspective of contemporary social problems such as

population growth, crime, racism, family problems, substance abuse and aging in terms of their impact on American social institutions and values.

SOCY 303 Sociology of Deviant Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. An analysis of relationship between social structure, social control and patterns of social deviance; a survey and critique of present social theories in light of empirical research and application of the theories to selected problem areas.

SOCY 304/ANTH 304/WMNS 304 The Family

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or ANTH 103. The family in its social and cultural context. Analysis of child rearing, marriage, kinship, family crises and family change in various societies around the world.

SOCY 305/AFAM 305/WMNS 305 African American Family in Social Context

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or SOCY/AFAM/WMNS 206. A socio-historical examination of the development of the family system of Americans from Africa. Focuses on large-scale (macro level) processes such as changes in the major mode of economic production and in political systems and the corresponding changes in black family structure and functioning. Presents the theoretical material on African American families and social change that prepares students for further study of the family as a social institution and for the study of family policy. This course is designed to meet the needs of upper division social science majors.

SOCY 310 Social Movements and Social Conflict

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Theory and practice of social movements, community organizing and other forms of collective behavior.

SOCY 315 Education and Society

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of education as a social institution in the societal context. Cross-cultural comparative perspectives on education.

SOCY 318 Social Thought

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A review of the ideas of major social philosophers whose works are now the foundation of much modern sociology.

SOCY 320/POLI 320 Research Methods in the Social Sciences

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: SOCY/POLI 205 or equivalent. Current methods of research in the social sciences.

SOCY 321 Class, Status, and Power

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of social mobility, class, status and power.

SOCY 322 Minority Groups in the United States

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A study of the various racial, religious, and ethnic minority groups. Issues of power, pluralism and assimilation are addressed as well as the relationship between subcultures and the dominant culture.

SOCY 325 Analysis of Sociological Data

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: SOCY 320 and STAT 210. Statistical techniques used in the analysis of data

from sample surveys and censuses, including tabular, graphical and inferential procedures. SPSS software will be used in the laboratory.

SOCY 327 Urban Sociology

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Origin, character and significance of urban communities. Ecological and social factors are analyzed as well as changes in urban social organization and their consequences.

SOCY 328/INTL 328 Russian Society in Transition

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of the instructor. An analysis of Russian culture and social institutions as they are today and in historical perspective. Throughout the course interrelationships among politics, the economy and social life are examined, with particular emphasis on the ideological implications of Russian/Soviet architecture, art and mass media; on environmental issues and health; on social problems and the legal systems; and on gender, the work world and family interaction.

SOCY 330/INTL 330 Global Societies: Trends and Issues

Semester course; 3 lecture hours. 3 credits. Prerequisite: INTL/POLI 105 or POLI 201 or SOCY 101. An analysis of factors that are promoting the globalization of social, economic and political relations, and an inquiry into implications of these developments for individuals, localities, nations and the world community. The course will highlight the impact of culture and ethnicity, historical and emerging patterns of international business activity and their societal significance, divergent strategies for economic and social development in the world's regions, and the effects of population growth and environmental problems on public life within and among nations.

SOCY 331 Juvenile Delinquency

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of the biological, cultural, psychological and social factors involved in juvenile delinquency and their relation to current techniques of treatment, prevention and control.

SOCY 333/WMNS 333 Sociology of Sex and Gender

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or permission of instructor. A cross-cultural and evolutionary exploration of the interdependence between male and female roles in the following social institutions: family, law, economics, politics, religion, education and health.

SOCY 334/WMNS 334 Sociology of Women

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101 or consent of instructor. This course will examine the position and status of women across societies and the social forces that maintain existing patterns and arrangements. The integration of family and work in women's lives will be emphasized.

SOCY 340 Self and Society

Semester course; 3 lecture hours. 3 credits. Focused discussion of the regularities in human behavior that arise due to man's participation in social groups. Emphasis will be placed on such topics as communications, attitudes, language, interpersonal perception, personal identities and social interaction.

SOCY 341/PSYC 341 Group Dynamics

Semester course; 3 lecture hours. 3 credits. Prerequisite: PSYC 101. Social and psychological principles and research related to the individual in groups. Specific topics include motivation for individuals forming and joining groups, performance and productivity of group members, group leadership and majority and minority influence. The group will be examined in relation to the larger society and as a subculture in itself.

SOCY 352 Social Change

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. This course provides an analysis of the major theoretical perspectives, sources, processes, patterns and consequences of social change. It considers factors that stimulate or hinder the acceptance of change and the unintended consequences of change.

SOCY 360/RELS 360 Sociology of Religion

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A systematic review and assessment of major sociological theories of and empirical research on religious behavior and groups. Topics include the structure of religious organizations; social correlates and functions of religion; denominationalism; religion and social class, social change and population.

SOCY 370 Mass Media and Society

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101, MASC 101 or POLI 103. A survey of the organization and social impact of the major types of mass media. Potential topics include the media as socializing agents; the effect of media messages on cultural patterns and social values; the impact of technology on social behavior; the role of "audiences" in interpreting media content; political and economic influences on the media industry; and the media as an instrument of social change. The structure and functions of the media in different societies will be compared.

SOCY 391 Topics in Sociology

Semester course; 3 lecture hours. 3 credits. Maximum six credits per semester; maximum total of 18 credits in all departmental topics courses that may be applied to the major. Check with department for specific prerequisites. A discussion of specialized areas of sociological interest. See the Schedule of Classes for specific topics to be offered each semester.

SOCY 401/AFAM 401 Americans and the U.S. Health Care System

Semester course; 3 lecture hours. 3 credits. Prerequisite: AFAM 103, AFAM 305 or permission of the instructor. Explores issues surrounding the disparity in health status and health outcomes between African Americans and other groups in the United States. Students are required to participate in an experiential exercise designed to enhance learning.

SOCY 402 Sociological Theory

Semester course; 3 lecture hours. 3 credits. Prerequisites: At least 18 credits in sociology. A study of the works of the major sociological theorists of the 20th century.

SOCY 403 Criminology

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Analysis of the nature, extent and distribution of crime, emphasizing theories of and research on causation, prediction and prevention.

SOCY 404/PSYC 404 Social Psychology of Emotions

Semester course; 3 lecture hours. 3 credits. Prerequisites: PSYC 101, SOCY 101. An examination of the social

shaping of emotion as well as its function in maintaining the social process. Cross-cultural uniformities and diversity in basic emotions and their expression are addressed as well as selected social psychological theories of emotions.

SOCY 405 Family Research

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY/ANTH/WMNS 304. Classic and contemporary issues in the scientific study of families, with an emphasis on the examination and evaluation of research.

SOCY 421 Applied Social Research

Semester course; variable credit. May be repeated for a total of six credits. Prerequisites: SOCY 320 and 325. A laboratory course providing training in the application of social research methods under laboratory and field situations to problems of mutual interest to community policy makers and professionals in the disciplines of sociology, social psychology and anthropology. This course is designed to enhance the skills of students in applied social research. With direct supervision by the instructor, individuals or small groups of students will address themselves to the tasks of defining, designing and executing research projects.

SOCY 426 Population Dynamics

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. The study of trends in fertility, mortality, population growth, distribution, migration and composition. The mutual influences of these factors and social organization.

SOCY 430 Politics, Power and Ideology

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Sociological analysis of political organization and behavior. Such subjects as distribution and uses of power, creation and management of group conflict, development and diffusion of political ideologies, and problems of bureaucracy and mass society will be considered.

SOCY 434 Sociology of Sport

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. Sport will be viewed as a major social institution within many societies. The class will study the relationship between sport and society both in terms of sport reflecting the ideology and culture of society as well as sport as an active agent of change in society. Race, gender and social class will be examined within the context of sport.

SOCY 436 Work and Management in Modern Society

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. The study of industrial plants and business organizations as social systems.

SOCY 440 Advanced Social Psychology

Semester course; 3 credits. Prerequisite: SOCY 340. The study of how human groups create the environment that, in turn, influences their individual behavior. The symbolic interactionist perspective will be thoroughly explored for its contribution to the study of persons, objects and meaning.

SOCY 445 Medical Sociology

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A survey of the social, economic, cultural and social psychological factors in health and illness; the sociology of health and medical care organizations and settings; the sociology of health occupations; and the techniques of research in medical sociology.

SOCY 446 Sociology of Mental Disorder

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A survey of selected social, economic, cultural and social psychological factors in mental health and illness. Such problems as defining mental illness; social factors in the distribution, diagnosis, etiology, and treatment of mental disorders; mental illness as a social role; and research methods used in the sociology of mental illness will be considered.

SOCY 470 News Media in a Democratic Society

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A consideration of the role of the news media in society. The course examines the news industry, including its economic organization and professional norms; news media content; the impact of news media in society, especially on the democratic political process; and the significance of political and economic influences on the functioning of the new media.

SOCY 475 Organizations and Human Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. A survey of theory and research in social organizations, including the study of behavior in modern complex human organizations.

SOCY 476 Labor, Occupations and Careers

Semester course; 3 lecture hours. 3 credits. Prerequisite: SOCY 101. An examination of labor force participation in terms of the individual worker's experience, the work setting, the nature of occupations and labor force composition.

SOCY 490 Senior Project

Semester course; 1 credit. Restricted to major. Students must register for this course with the permission of an instructor. Students are required to produce a project report that must be approved by and submitted to the instructor of the course.

SOCY 492 Independent Study

Semester course; variable credit. Maximum of six credits per semester; maximum total of 12 credits for all independent study courses. Open generally only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of the instructor and department chair must be procured prior to registration of the course. Cannot be used in place of existing courses.

SOCY 493 Field Research Internship

Semester course; 3 credits. Prerequisites: Applications must be approved by a faculty adviser and by the internship coordinator. For sociology and anthropology majors of junior or senior standing. This course may be repeated for a maximum of six credits. Students are placed in organizations that offer supervised work or research experience appropriate to their interests. Each student must work 150 clock hours in the organization and write a sociological analysis of experiences using appropriate fieldwork methodological techniques.

SOCY 498 Honors Research Course

Semester course; 3 credits. Prerequisites: Student must be in the honors program of the department and have achieved senior status. This course will entail the planning and execution of a major research project demonstrating a thorough understanding and use of research techniques in sociological/anthropological analysis, knowledge of relevant literature, sophisticated writing and research ability under the direction of a faculty mentor.

SOCY 501 The Foundations of Sociological Theory

Semester course; 3 lecture hours. 3 credits. The foundations of theoretical explanation of the social world is addressed from an historical and philosophical perspective. The emergence of contemporary sociological theory in the 19th and 20th centuries is reviewed.

SOCY 502 Contemporary Sociological Theory

Semester course; 3 lecture hours. 3 credits. A critical assessment is given of such contemporary theoretical orientations as functionalism, conflict theory, exchange theory, symbolic interactionism and phenomenology.

Department of Statistical Sciences and Operations Research

D'arcy P. Mays

Associate Professor and Department Chair (1993)
B.S. 1988 Virginia Polytechnic Institute and State University
M.S. 1989 Virginia Polytechnic Institute and State University
Ph.D. 1993 Virginia Polytechnic Institute and State University

The curriculum in mathematical sciences promotes understanding of the mathematical sciences and their structures, uses and relationships to other disciplines. To this end, the scholarly growth of the faculty and students in the mathematical sciences is nurtured through study, research and a high standard of teaching. The curriculum provides a sound foundation for the student seeking to enter a career with a technological orientation or for the student who wishes to pursue graduate study in applied mathematics, mathematics, operations research, statistics or related fields.

A Bachelor of Science is offered jointly by the Department of Statistical Sciences and Operations Research and the Department of Mathematics and Applied Mathematics. In the Department of Statistical Sciences and Operations Research, students in the Bachelor of Science in Mathematical Sciences can choose from two areas of concentration.

1. Mathematical sciences/operations research focuses on modern mathematical techniques for solving problems arising from other fields, such as engineering, business or economics.
2. Mathematical sciences/statistics teaches students how mathematical models used in the investigation of uncertain phenomena are developed and applied to experimental and nonexperimental data.

The Department of Statistical Sciences and Operations Research also offers a mathematical sciences Certificate in Statistics for students in other programs. Additionally, the department offers required and elective courses to students in the mathematical sciences program, and to those in other fields of study.

Degree requirements – Bachelor of Science in Mathematical Sciences with a concentration in operations research or statistics

The B.S. in mathematical sciences requires a minimum of 120 credits with at least 41 of those credits in courses labeled CMSC, MATH, OPER and STAT. Along with the general education requirements of the College of Humanities and Sciences and the undergraduate degree requirements, students are required to take core courses and fulfill specific requirements for the degree.

Based on the results of the Mathematics Placement Test, students may be required to take MATH 151 Precalculus Mathematics. No more than one course in mathematics (MATH) at the 100 level can count for the general requirements toward the Bachelor of Science degree. Credit for 100-level mathematical sciences course cannot be applied toward the core courses required for the major in mathematical sciences.

Mathematical sciences majors must complete the following requirements:

- A. Complete one of the following sequences:
 1. BIOL 151, 152 and BIOZ 151L, 152L
Introduction to Biological Science and Laboratory I, II
 2. CHEM 101-102 and CHEZ/FRSZ 101L, 102L
General Chemistry and Laboratory I-II
 3. PHYS 207, 208 University Physics I, II or PHYS 201-202 General Physics
- B. Complete another course, including laboratory, in the natural sciences from the list of courses approved for satisfying the general education requirements of the College of Humanities and Sciences. This course must be in the life sciences if the chemistry or physics sequence was selected in A above. It must be in the physical sciences if the biology sequence was selected in A above.
- C. Complete one other course in the natural sciences or complete a minor or second major offered outside the Department of Statistical Sciences and Operations Research.

Completion of the previously mentioned requirements will satisfy the College of Humanities

and Sciences natural sciences general education requirements.

Core. All students must take the following courses:
 MATH 200-201 Calculus with Analytic Geometry
 MATH 307 Multivariate Calculus
 MATH 310 Linear Algebra
 STAT 212 Concepts of Statistics

Concentrations. By completing the listed requirements, students may obtain a designation on their transcript that their study has emphasized one of the following concentrations. Students may choose to meet the requirements of both concentrations.

1. **B.S. in Mathematical Sciences/operations research**
 CMSC 255 Structured Programming
 MATH 211 Mathematical Structures
 OPER/MATH 327 Mathematical Modeling or
 STAT 503 Introduction to Stochastic Processes
 OPER/STAT 490 Communications in Statistics and Operations Research
 OPER 527 Deterministic Operations Research
 OPER 528 Stochastic Operations Research
 STAT/MATH 309 Introduction to Probability Theory
 Four additional upper-level credits in mathematical sciences.
2. **B.S. in Mathematical Sciences/statistics**
 CMSC 255 Structured Programming
 OPER/STAT 490 Communications in Statistics and Operations Research
 STAT/MATH 309 Introduction to Probability Theory
 STAT 314 Applications of Statistics
 STAT 404 Introduction to Statistical Inference
 STAT/BIOS 544 Statistical Methods II
 Six additional upper-level credits in mathematical sciences, at least three of which must be in statistics.

Students who meet the requirements for two of the concentrations within the mathematical sciences curriculum may receive a double major. To initiate a double major, students must obtain the appropriate form from the Office of Records and Registration.

With the approval of the departmental Undergraduate Credentials Committee and the academic adviser, students can design their own plan of study, which will result in a Bachelor of Science in Mathematical Sciences. This student-planned curriculum must contain at least 24 credits in upper-level (300-500) mathematical sciences courses.

Minor requirements – general

A minimum GPA of 2.0 must be achieved in the minor, and credit for 100-level mathematical sciences courses cannot be applied to the minor. Mathematical sciences majors

cannot minor in a Department of Statistical Sciences and Operations Research program.

Minor in statistics

A minor in mathematical sciences with a concentration in statistics consists of at least 18 credits offered by the Department of Mathematics and Applied Mathematics and the Department of Statistical Sciences and Operations Research. These credits include a minimum of three credits of calculus and nine upper-level credits in statistics courses. It is strongly recommended, though not required, that students with a minor in statistics take MATH 211 Mathematical Structures and STAT 212 Concepts of Statistics. Neither STAT 208, 210 nor any 100-level course may fulfill the required 18 credits.

Post-baccalaureate programs in mathematical sciences

For students currently holding a bachelor's degree in the appropriate discipline, the Department of Statistical Sciences and Operations Research offers the Master of Science in mathematical sciences with concentrations in both operations research and statistics. For more information about these programs, refer to the Graduate and Professional Programs Bulletin.

Second baccalaureate degrees and mathematical sciences certificate in statistics

For students possessing a bachelor's degree and wishing to gain undergraduate preparation in an area of mathematical sciences, the department offers several options.

Second baccalaureate degrees are offered through the department. For detailed information about these programs consult the "Academic Regulations and General Degree Requirements" chapter of the bulletin.

The mathematical science Certificate in Statistics is open to students who have received bachelor's degrees in other areas. The primary goal of the program is to allow students with undergraduate majors in science, engineering and the social sciences an opportunity to acquire the formal training in statistics that is currently in demand in industry and government. Some students also may find the program a useful way to prepare for graduate study in statistics.

To be admitted to the program, a student must complete a course of study leading to a

baccalaureate degree. A student with limited college mathematics experience must take the Mathematics Placement Test before entering the program. Application materials and further information may be obtained by calling (804) 828-1301, TDD (804) 828-0100 or by writing to the following address: Virginia Commonwealth University, Department of Statistical Sciences and Operations Research, Post-baccalaureate Certificate in Statistics, P.O. Box 843083, Richmond, VA 23284-3083.

The certificate program in statistics requires completion of a minimum of 32 approved credits at the 200 level or higher in mathematical sciences or related areas. A maximum of credits toward certification may be transferred from course work completed before or after receiving a bachelor's degree. At least 18 approved credits must be from courses in statistics and probability at the 300 level or higher and must be taken at VCU. No more than six of these 18 credits can be from courses taken before admission to the certificate program. The student must achieve a GPA (on courses taken at VCU) of 2.5 or better with no grade below "C." All requirements for the certificate must be completed within five years of admission to the program.

The following courses are required:

CMSC 245 Introduction to Programming Using C++ or CMSC 255 Structured Programming (or equivalent)
 MATH 200-201 Calculus with Analytical Geometry (or equivalent)
 MATH/STAT 309 Introduction to Probability Theory
 STAT 210 Basic Practice of Statistics (or equivalent)
 STAT 314 Applications of Statistics
 STAT 404 Introduction to Statistical Inference
 STAT/BIOS 544 Statistical Methods II

Students will work closely with the program coordinator in selecting appropriate elective courses. While some students may have the background necessary for a 600-level graduate course, it is expected that most elective courses will be drawn from the 300- to 500-level statistics course offerings of the department. Statistics courses taught in other units of the university may be credited toward the certificate with the permission of the program coordinator.

Cooperative Education Program

The Cooperative Education Program is available to qualifying students pursuing

undergraduate degrees in mathematical sciences. For a full description of this program, refer to the "Division of Student Affairs and Enrollment Services" chapter of this bulletin.

Courses in operations research (OPER)

OPER 327/MATH 327 Mathematical Modeling

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 200. Fundamental concepts of mathematical modeling. Topics may include differential equation models, optimization models and probabilistic models. Practical problems will be discussed throughout.

OPER 490/STAT 490 Communications in Statistics and Operations Research

Semester course; 2 lecture hours. 2 credits. Prerequisites: ENGL 200 and (STAT 314 or OPER 327), or permission of the instructor. This course is designed to help students attain proficiency in professional and academic communication in the context of statistics and operations research. The focus of the course will be on the discipline-specific communication skills necessary to excel in careers or graduate studies in these disciplines.

OPER 520/MATH 520 Game Theory and Linear Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 310. The mathematical basis of game theory and linear programming. Matrix games, linear inequalities and convexity, the mini-max theorems in linear programming, computational methods and applications.

OPER 527 Deterministic Operations Research

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or 255, MATH 310 or permission of the instructor. Introduction to decision making using mathematical programming and system optimization. Topics include linear programming and the simplex method, nonlinear optimization and evolutionary methods. Applications to manufacturing, transportation, inventory control, project management and scheduling problems.

OPER 528 Stochastic Operations Research

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 245 or 255, MATH/STAT 309, and MATH 310 or equivalent. Introduction to decision making under uncertainty and the modeling of stochastic system. Topics include decision analysis, decision trees, attitudes to risk and the concept of utility, Monte Carlo simulation and risk analysis, discrete Markov Chains, birth-death processes and queuing models. Applications to decision problems in business and engineering will be discussed.

Courses in statistics (STAT)

Students may receive credit toward graduation for only one of STAT 208, STAT 210 or STAT 212.

STAT 208 Statistical Thinking

Semester course; 2 lecture hours and 1.5 laboratory hours. 3 credits. Prerequisite: MATH 131, MATH

141 or MATH 151, or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Not open to mathematical sciences or computer science majors. An exploration of the use of statistics in the world around us through in-depth case studies. Emphasis is on understanding statistical studies, charts, tables and graphs frequently seen in various media sources. Laboratories involve learning activities centered on case studies.

STAT 210 Basic Practice of Statistics

Semester course; 2 lecture hours and 1.5 laboratory hours. 3 credits. Prerequisite: MATH 131, MATH 141, MATH 151 or satisfactory score on the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case where the stated alternative prerequisite course has been completed at VCU. Designed for students seeking a B.S. degree who will likely take another quantitative reasoning course for which statistics may be a prerequisite. Not open to mathematical sciences or computer science majors. Topics include examining distributions, examining relationships, producing data, sampling distributions and probability, introduction to inference.

STAT 212 Concepts of Statistics

Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. Prerequisite: MATH 200. An introduction to the nature of statistical thinking and the application of abstract systems to the resolution of nonabstract problems. Probability models for stochastic events. Parametric representations. Estimation, testing hypotheses and interval estimation with application to classical models. Laboratories include activity based learning and computer usage. A core course for mathematical sciences.

STAT 291 Topics in Statistics

Semester course; 1-3 lecture hours. 1-3 credits. A study of selected topics in statistics. Specific topics may fulfill general education requirements. See the Schedule of Classes for specific topics and prerequisites.

STAT 309/MATH 309 Introduction to Probability Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 201. Completion of MATH 211 or MATH 300 (or equivalent knowledge) is strongly recommended. A study of the mathematical theory of probability, including finite and infinite sample spaces, random variables, discrete and continuous distributions, mathematical expectation, functions of random variables and sampling distributions.

STAT 314 Applications of Statistics

Semester course; 4 lecture hours. 4 credits. Prerequisite: STAT 210 or 212. A study of the concepts and application of statistical methods including: estimation and hypothesis testing for two sample problems; one factor analysis of variance and multiple comparisons; randomized block designs and analysis; inferences on categorical data, including chi-square test for independence for contingency tables; simple linear regression and correlation; multiple linear regression. Special topics include distribution free (nonparametric) methods in various statistical problems, two factor analysis of variance, and the use of a statistical software package for data analysis.

STAT 321 Introduction to Statistical Computing

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 212, CMSC 245 or CMSC 255, and MATH 200, or their equivalents. The application of computers to statistical practice using SAS, S-PLUS, SPSS and similar statistical software. Topics include data storage and retrieval, data modification and file handling, statistical and graphical data analysis.

STAT 391 Topics in Statistics

Semester course; 1-3 lecture hours. 1-3 credits. A study of selected topics in statistics. See the Schedule of Classes for specific topics and prerequisites.

STAT 404 Introduction to Statistical Inference

Semester course; 3 lecture hours. 3 credits. Prerequisites: Both STAT 212 and STAT/MATH 309, or permission of instructor. Framework for statistical inference. Point and interval estimation of population parameters. Hypothesis testing concepts, power functions, Neyman-Pearson lemma and likelihood ratio tests. Elementary decision theory concepts.

STAT 421 Computational Issues in Statistical Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: STAT 212, CMSC 245 or 255, and MATH 310, or their equivalents. Examination of the interface of statistics, computer science and numerical analysis. The course explores the fundamental problems of doing arithmetic with digital computers: rounding, truncation, errors and error propagation, stability and accuracy of algorithms. It then proceeds to examine extensions to the computation of probabilities, percentage points of probability distributions, random number generation, Monte Carlo methods and numerical methods in linear algebra. This course will require programming in higher level language.

STAT 490/OPER 490 Communications in Statistics and Operations Research

Semester course; 2 lecture hours. 2 credits. Prerequisites: ENGL 200 and (STAT 314 or OPER 327), or permission of the instructor. This course is designed to help students attain proficiency in professional and academic communication in the context of statistics and operations research. The focus of the course will be on the discipline-specific communication skills necessary to excel in careers or graduate studies in these disciplines.

STAT 492 Independent Study

Semester course; variable; 2, 3, 4 credits per semester. Maximum four credits per semester; maximum total of six credits. Generally open to students of only junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

STAT 503 Introduction to Stochastic Processes

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 307 and STAT/MATH 309. A continuation of topics given in STAT/MATH 309. An elementary introduction to stochastic processes and their applications, including Markov chains and Poisson processes.

STAT 513-514/BIOS 513-514 Mathematical

Statistics I-II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MATH 307. Probability, random variables and their properties, distributions, moment generating functions, limit theorems, estimators and their properties; Neyman-Pearson and likelihood ratio criteria for testing hypotheses.

STAT 523/BIOS 523 Nonparametric Statistical

Methods

Semester course; 3 lecture hours. 3 credits. Prerequisites: Any two courses of statistics or permission of instructor. Estimation and hypothesis testing when the form of the underlying distribution is unknown. One-, two- and k-sample problems. Tests of randomness, Kolmogorov-Smirnov tests, analysis of contingency tables and coefficients of association.

STAT 541 Applied Statistics for Engineers and

Scientists

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 200-201 or equivalent, and a working knowledge of computers. An introduction to applied statistics intended primarily for students in mathematical sciences, engineering and the Commonwealth Graduate Engineering Program. The fundamental ideas of the collection and display of information, descriptive statistics and exploratory data analysis, elementary probability theory, frequency distributions and sampling are covered. Other topics include tests of hypotheses and confidence intervals for one and two sample problems; ANOVA; principles of one-factor experimental designs including randomized complete block designs, fixed and random effects and multiple comparisons; correlation and linear regression analysis; control charts; contingency tables and goodness-of-fit. Students may receive degree credit for only one of STAT 541, STAT 543 or BIOS 553.

STAT 543/BIOS 543/PMCH 543 Statistical

Methods I

Semester course; 3 lecture hours. 3 credits. Prerequisite: Graduate standing, or one course in statistics and permission of instructor. Basic concepts and techniques of statistical methods, including: the collection and display of information, data analysis and statistical measures; variation, sampling and sampling distributions; point estimation, confidence intervals and tests of hypotheses for one and two sample problems; principles of one-factor experimental design, one-way analysis of variance and multiple comparisons; correlation and simple linear regression analysis; contingency tables and tests for goodness of fit. Students may not receive degree credit for both STAT 541 and STAT 543. STAT 543 is not applicable toward the M.S. degree in mathematical sciences or the M.S. degree in computer science.

STAT 544/BIOS 544 Statistical Methods II

Semester course; 3 lecture hours. 3 credits. Prerequisite: One of the following: STAT 314, 541, 543 or equivalent. Advanced treatment of the design of experiments and the statistical analysis of experimental data using analysis of variance (ANOVA) and multiple-regression. Includes the use of a statistical software package for data analysis.

STAT 591 Topics in Statistics

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: Permission of the instructor. Course open to qualified undergraduates. Selected topics in statistics.

Course in university studies (UNVS)

UNVS 291 Interdisciplinary Topics

Semester course; variable; 1-4 credits per semester. Maximum total of eight credits in all university studies courses. An interdisciplinary course designed to give the student an overview of a topic not associated with a particular discipline.

Women's Studies Program

A women's studies concentration is offered through the Bachelor of Interdisciplinary Studies Program.

Preparation for professional studies in the health sciences

Seth L. Leibowitz

Director (2003)
B.A. 1993 Montclair State College
M.A. 1995 New York University
Ph.D. 2002 North Carolina State University

The College of Humanities and Sciences provides preparatory programs for a number of health sciences programs offered at VCU. The programs are medicine, dentistry, dental hygiene, clinical laboratory sciences, radiation sciences, nursing, occupational therapy, pharmacy and physical therapy. Pre-veterinary medicine advising is available through the biology department, pre-optometry through the dean's office of the College of Humanities and Sciences.

A Guaranteed Admission Program exists between the College of Humanities and Sciences and the health sciences schools at VCU. This program entitles academically superior high school seniors guaranteed admission to the professional programs mentioned previously.

The Guaranteed Admission Program is open only to high school seniors whose SAT score is at least 1270. A detailed description of this program appears under the University Honors Program heading.

Most students enrolled in a pre-health sciences program in the College of Humanities and Sciences will apply to one of the VCU professional programs. Unless informed otherwise by the student, College of Humanities and Sciences' advisers will help the student prepare an academic program that will meet the requirements of the VCU professional programs. However, since more qualified students apply to these

professional programs than can be accommodated, students are encouraged to apply to other professional schools and to use their elective courses to meet requirements of those institutions.

Students also are advised to plan alternative career choices in the event they are not accepted into a professional program. This recommendation is especially true for students enrolled in a two-year, pre-health sciences program.

Early preparation in meeting the requirements of the alternate major through judicious selection of electives enables the student to make a smooth transition from a pre-health sciences program to a baccalaureate program.

Virginia residency may be a factor in admission to the VCU health sciences program. For more information about residency, contact the appropriate admissions officer on the MCV Campus.

Preparation for the study of medicine and dentistry, pre-medicine (ADPM) and pre-dentistry (ADPD)

Leaders in medical and dental education encourage students planning to enter these professions to obtain a broad background in the liberal arts, with a study of not only sciences, but the humanities and social sciences as well. The prospective student should check with the intended school of medicine or dentistry for specific requirements.

Like many schools of medicine, the VCU School of Medicine requires a minimum of three years (90 semester hours or their equivalent) in an accredited college or university. But preference is given to candidates who earn a baccalaureate degree prior to the beginning of medical school.

Biological science, general chemistry, organic chemistry, English, mathematics and physics are required for admission to the VCU School of Medicine. General physiology, genetics, calculus and behavioral sciences, though not required, are strongly recommended for the pre-medical student.

Like other schools of dentistry, the VCU School of Dentistry requires a minimum of 90 credits (or equivalent) taken in an accredited college or university. Biology, general chemistry, organic chemistry, mathematics, physics and English are generally required for admission to the VCU School of Dentistry.

Other courses, such as those in the behavioral sciences and courses involving psychomotor skills are strongly recommended.

Programs of study

Admission to and completion of a pre-medical or pre-dental program offered by the College of Humanities and Sciences does not constitute admission to VCU's School of Medicine or School of Dentistry. The student must apply separately to the medical or dental school of his or her choice at the appropriate time.

A student entering the College of Humanities and Sciences with an interest in preparing for medical or dental school should declare an academic major while also indicating a pre-medical or pre-dental advising track. The classification pre-medical or pre-dental exists to identify the student's career interests, but the student does not earn a pre-medical or pre-dental degree.

For students who are "undeclared" about an academic major initially, the students will clarify their academic interests through regular conversations with their advisers. The students will declare a major in one of the regular four-year degree programs offered by the College of Humanities and Sciences. At the same time, the student will complete the necessary prerequisites for application for admission to the medical or dental school of his or her choice.

Pre-medical and pre-dental students are encouraged to major in fields of greatest interest to them. Students need not major in a science area. In fact, many non-science majors achieve high acceptance rates into medical and dental schools.

Certain curricula in the College of Humanities and Sciences allow a student to plan a program for entry into medical or dental schools that accept students after completion of three years of successful undergraduate work.

The university will award a Bachelor of Science degree to a student who has successfully completed the first year of an accredited medical or dental school, provided he or she has completed all the general education requirements for the College of Humanities and Sciences and the requirements in the major. Successful completion of the first year of medical or dental school is accepted as 30 elective credits toward the student's total hours.

Preparation for the study of physical therapy (ADPT)

VCU's Department of Physical Therapy offers a three-year degree program leading to a professional doctorate in physical therapy (D.P.T.). A student entering the College of Humanities and Sciences with an interest in preparing for a career in physical therapy should declare an academic major while also indicating the pre-physical therapy advising track (ADPT). The classification pre-physical therapy exists to identify the student's career interests, but the student does not earn a pre-physical therapy degree.

For students who are "undeclared" about an academic major initially, the students will clarify their academic interests through regular conversations with their advisers. The students will declare a major in one of the regular four-year degree programs at the university. Pre-physical therapy students are encouraged to major in fields of greatest interest to them. At the same time, the student will complete the necessary prerequisites for their application (in the fall of their senior year) to professional physical therapy program.

Program of study

Admission to and completion of a pre-physical therapy program offered by the College of Humanities and Sciences does not constitute admission to the physical therapy program in the School of Allied Health Professions. The student must apply separately to the physical therapy program of his or her choice at the appropriate time.

Prerequisites for admission to the VCU D.P.T. program include: a bachelor's degree, minimum GPA of 2.7, a satisfactory score on the general test of the Graduate Record Examination, a minimum of 150 volunteer hours in at least two physical therapy practice settings and the completion of required courses. The program course requirements for the VCU D.P.T. program to be completed along with the bachelor's degree include six credits in English (composition and rhetoric), 12 credits in biological sciences including human physiology with laboratories, eight credits of general chemistry, eight credits of physics, mathematics, statistics, psychology (including developmental and abnormal), six credits of other social sciences, six credits in humanities, three credits in speech, and three credits in

ethics. Although not required, students are strongly urged to complete a cell biology course and a vertebrate histology course.

Three credits of AP English may be used toward rhetoric and composition. BIOL 151, 152 and BIOZ 151L, 152L should be taken for students majoring in biology. AP credit may not be used for biology. AP credits may be used for mathematics, chemistry, physics and general psychology.

Preparation for the study of clinical laboratory sciences (PCL)

The curriculum in pre-clinical laboratory sciences offered by the College of Humanities and Sciences meets the minimum academic requirements for application to many professional programs, including the Bachelor of Science degree program in clinical laboratory sciences offered by the VCU School of Allied Health Professions. Students intending to apply to a professional program at another institution should consult that institution's bulletin for specific prerequisite courses. Any student who wishes to transfer to a school other than VCU must transfer to a school that will confer a degree at the completion of the fourth year of study.

Admission to and satisfactory completion of the two-year preparation program offered by the College of Humanities and Sciences does not constitute admission to the junior- and senior-year professional program of the School of Allied Health Professions. In the fall of the year preceding the year of desired admission, the student must apply separately to the professional program through the Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632.

Admission into the program is based on scholastic record, demonstrated aptitude and interest, and a personal interview conducted by the departmental admissions committee.

	credits	
	first semester	second semester
First year		
BIOL 101 Biological Concepts	3	-
BIOZ 101L Biological Concepts Laboratory	1	-
BIOL 205 Basic Human Anatomy	-	4
CHEM 101-102 General Chemistry I-II	3	3
CHEZ/FRSZ 101L, 102L General Chemistry Laboratory I, II	1	1
CLLS 201 Introduction to Clinical Laboratory Science	1	-
ENGL 101 Writing and Rhetoric Workshop I	3	-

MATH 151 Precalculus Mathematics	4	-
Humanities or social sciences courses	-	6
	16	14
Second year		
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	-	4
CHEM 309 Quantitative Analysis or CHEM 301 Organic Chemistry	3	-
ENGL 200 Writing and Rhetoric Workshop II	-	3
Visual or performing arts	-	3
Electives	9	3
	12	13

If a student does not qualify to take CHEM 101 and CHEZ/FRSZ 101L in the first semester because of a low score on the Mathematics Placement Test or because of placement in CHEM 100 Introduction to Chemistry (needed for additional chemistry preparation), the student should add BIOL 101 Biological Concepts and BIOZ 101L Biological Concepts Laboratory, in the fall semester and plan to take CHEM 102 and CHEZ/FRSZ 102L the following summer.

Preparation for the study of dental hygiene (PDH)

The curriculum in pre-dental hygiene offered by the College of Humanities and Sciences meets the minimum academic requirements for application to many professional programs, including the Bachelor of Science degree program in dental hygiene offered by the VCU School of Dentistry. Students intending to apply to the junior- and senior-year professional program at another institution should consult that institution's bulletin for specific prerequisites.

Admission to and satisfactory completion of the two-year preparatory program offered by the College of Humanities and Sciences does not constitute admission to the junior- and senior-year professional program at the VCU School of Dentistry. In the fall of the year preceding the year of admission, the student must apply separately to that professional program through the Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632.

Admission into the program is based on scholastic record, demonstrated aptitude and interest, and a credential review conducted by the departmental admissions committee.

BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4	
BIOL 205 Basic Human Anatomy	4	
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	4	
BIOL 209, BIOZ 209L Medical Microbiology and Laboratory	4	
CHEM 101, CHEZ/FRSZ 101L General Chemistry and Laboratory	4	
ENGL 101 Writing and Rhetoric Workshop I	3	
ENGL 200 Writing and Rhetoric Workshop II (ENGL 200 taken in second year)	3	
PSYC 101 Introduction to Psychology	4	
SOCY 101 General Sociology	3	
SPCH 121 Effective Speech	3	
STAT 210 Basic Practice of Statistics*	3	
Humanities elective	3	
Visual/performing arts	3	
Approved electives	15	
		60

* Depending on results of Mathematics Placement Test students also might have to take MATH 141.

Preparation for the study of nursing (PNR)

The curriculum in pre-nursing offered by the College of Humanities and Sciences meets the minimum academic requirements for application to many professional programs, including the Bachelor of Science degree program in nursing offered by the School of Nursing at VCU. Students intending to apply to a professional program at another institution should consult that institution's bulletin for specific prerequisites.

Admission to and satisfactory completion of the one year preparation program offered by the College of Humanities and Sciences does not constitute admission to the professional program at VCU. In the fall of the year preceding the year of desired admission, the student must apply separately to the professional program in the School of Nursing through the Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632.

	credits	
	first semester	second semester
First year		
BIOL 101 Biological Concepts	3	-
BIOZ 101L Biological Concepts Laboratory	1	-
BIOL 205 Basic Human Anatomy	-	4
BIOL 217 Principles of Nutrition	-	3
ENGL 101 Writing and Rhetoric Workshop I	3	-

MATH 131 Introduction to Contemporary Mathematics or STAT 208 Statistical Thinking or STAT 210 Basic Practice of Statistics	3	-	
NURS 101 Introduction to Nursing	-	1	
PSYC 101 Introduction to Psychology	4	-	
SOCY 101 General Sociology	3	-	
Humanities elective (See PNR worksheet)	-	3	
Laboratory science (see PNR worksheet for choices)*	-	4	
	17	15	

* If high school chemistry (with laboratory) with a grade of "C" or better has not been completed, one semester of chemistry with laboratory must be taken. If high school chemistry with a grade of "C" or better has been completed, choose from: BIOL 201 and BIOZ 201L, BIOL 103 and BIOZ 103L, PHYS 101 and PHYZ 101L, or PHYS 201 and PHYZ 201L.

Preparation for the study of occupational therapy (POC)

The curriculum in pre-occupational therapy offered by the College of Humanities and Sciences meets the minimum academic requirements for the Master of Science degree program in occupational therapy offered by the School of Allied Health Professions at VCU.

This program is accredited by the Accreditation Council for Occupational Therapy Education. Students intending to apply to the junior- and senior-year professional program at another institution should consult that institution's bulletin for specific prerequisite courses.

Admission to and satisfactory completion of the three-year (90 credit) preparatory program offered by the College of Humanities and Sciences does not constitute admission to the professional program at VCU. In the fall of the year preceding the year of desired admission, the student must apply separately to the VCU professional program through the Virginia Commonwealth University, Graduate School, P.O. Box 843051, Richmond, VA 23284-3051.

	credits
BIOL 101 Biological Concepts	3
BIOZ 101L Biological Concepts Laboratory	1
BIOL 205 Basic Human Anatomy	4
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	4
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II (ENGL 200 taken in second year)	3
PSYC 101 Introduction to Psychology	4
PSYC 304 Life Span Developmental Psychology	3

PSYC 407 Psychology of the Abnormal	3
STAT 210 Basic Practice of Statistics*	3
Social science courses (psychology, sociology or anthropology – PSYC 302 Psychology of Adolescence, PSYC 306 Psychology of Adult Development or GRTY 410 Introduction to Gerontology are recommended)	6
Approved electives (minimum)	53
	<hr/> 90

* Depending on results of Mathematics Placement Test, students may be required to take MATH 131.

Preparation for the study of optometry (ADPO)

A Bachelor of Science program offered on the Academic Campus provides excellent opportunities to complete the necessary prerequisites for application to optometry school.

Prospective students are encouraged to pursue a broad background in liberal arts, including sciences, humanities and social sciences. The prospective student should check with the intended school of optometry for its specific requirements.

Many schools of optometry require a minimum of 90 credits (or their equivalent) in an accredited college or university, but preference is given to candidates who earn a baccalaureate degree prior to beginning optometry school. Biological science, general chemistry, organic chemistry, physics, mathematics, English and general psychology are generally required for admission to most optometry schools.

Preparation for the study of pharmacy (PPH)

The curriculum in pre-pharmacy offered by the College of Humanities and Sciences meets the minimum academic requirements needed for application to many professional programs, including the doctoral degree program in pharmacy offered by the School of Pharmacy at VCU. Students intending to apply to a professional program at another institution should consult that institution's bulletin for specific prerequisite courses.

Credits earned by examination (AP, CLEP and so on) will not count toward the 73 credits required for admission to the VCU School of Pharmacy. However, the content area covered by the examination need not be repeated. Electives in related areas may be substituted for the needed credits.

Admission to and satisfactory completion of the two-year preparation program offered by the College of Humanities and Sciences does not constitute admission to the final four years of the doctoral program of the VCU School of Pharmacy. In the fall of the year preceding the year of desired admission, the student must apply separately to the professional program through the Virginia Commonwealth University, School of Pharmacy, P.O. Box 980632, Richmond, VA 23298-0632.

Admission into the program is based on scholastic record, demonstrated aptitude and interest, and a personal interview conducted by the school's admissions committee.

	credits
BIOL 101 Biological Concepts	3
BIOZ 101L Biological Concepts Laboratory	1
BIOL 201, BIOZ 201L Human Biology and Laboratory or BIOL 152, BIOZ 152L Introduction to Biological Sciences II and Laboratory	4
CHEM 101-102 General Chemistry	6
CHEZ/FRSZ 101L, 102L General Chemistry Laboratory I, II	2
CHEM 301-302 Organic Chemistry	6
CHEZ 301L, 302L Organic Chemistry Laboratory I, II	4
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II (ENGL 200 taken in second year)	3
MATH 151 Precalculus Mathematics	4
MATH 200 Calculus with Analytic Geometry	4
PHYS 201-202 General Physics	8
SPCH 121 Effective Speech	3
STAT 210 Basic Practice of Statistics	3
Liberal arts electives*	18

72

* The liberal arts electives should represent a well-balanced program of courses in the fine arts, humanities and social sciences. Choose from anthropology, art history, economics, history, philosophy, political science, psychology, religious studies, sociology, social sciences, foreign languages, literature, music appreciation or computer science. Students may not present studio, activity (P.E.), mathematics or science courses.

If a student does not qualify to take CHEM 101 and CHEZ/FRSZ 101L in the first semester because of a low score on the Mathematics Placement Test or because of placement in CHEM 100 Introduction to Chemistry (needed for additional chemistry preparation), the student should add a three-credit elective in the fall semester and plan to

take CHEM 102 and CHEZ/FRSZ 102L in the summer or the following fall semester.

Since this program requires students to take 17 to 18 credits every semester in order to finish the course work in four semesters, they should consider taking some courses during the summer between their freshman and sophomore years. Physical education credits cannot be used to meet the above prerequisites.

Preparation for the study of radiation sciences (PRA)

The curriculum in pre-radiation sciences meets the minimum academic requirements for the Bachelor of Science degree program in clinical radiation sciences with concentrations in radiography or nuclear medicine technology or radiation therapy offered by the VCU School of Allied Health Professions. Students intending to apply to a professional program at another institution should consult that institution's bulletin for specific prerequisite courses.

Admission to and satisfactory completion of the one-year preparation program offered by the College of Humanities and Sciences does not constitute admission to the sophomore year professional program in the School of Allied Health Professions. In the

fall of the year preceding the year of desired admission, the student must apply separately to the professional program through the Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632.

Admission into the program is based on scholastic record, demonstrated aptitude and interest, and a personal interview conducted by the departmental admissions committee.

	credits
BIOL 101 Biological Concepts	3
BIOZ 101L Biological Concepts Laboratory	1
BIOL 205 Basic Human Anatomy	4
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	4
ENGL 101 Writing and Rhetoric Workshop I	3
MATH 141 Algebra with Applications	3
PSYC 101 Introduction to Psychology	4
PHYS 101 Foundations of Physics and PHYZ 101L Foundations of Physics Laboratory	4
Humanities elective	3
General elective	3
	32

Preparation for the study of veterinary medicine (ADPV)

The Bachelor of Science in Chemistry and the Bachelor of Science in Biology degree

programs offered in the College of Humanities and Sciences provide excellent opportunities to complete the necessary prerequisites for application to a veterinary school.

Preparation for professional studies in law (ADPL)

Few law schools list specific undergraduate courses as prerequisites for admission, thus, the student considering law school can major in virtually any department in the College of Humanities and Sciences or the School of Business.

However, students preparing for law school are encouraged to obtain a broad liberal arts background with emphasis on the social sciences, philosophy and English. Students interested in law school may decide to complete the philosophy of law minor. This minor program is described under the Department of Philosophy.

Pre-law advisers maintain continual contact with law school admissions offices and will assist any interested student with questions about curriculum, financial assistance, application procedure and the law school admission test (LSAT).

Graduate School

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(804) 828-6916 • Fax (804) 828-6949
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Sherry T. Sandkam

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M.B.A. 1986 Virginia Commonwealth University
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Mark J. Schaefermeyer

Director, Recruitment and Admissions, Graduate
School
B.A. 1974 Virginia Polytechnic Institute and State
University
M.A. 1976 University of South Florida
Ph.D. 1982 The Ohio State University

Before enrolling in graduate courses, students should consult with the graduate director of the program of interest. In some programs, credits for courses will not apply to a VCU graduate degree until the student has been admitted to a graduate degree program.

Degree-seeking graduate students

For information about graduate study at VCU, see the Graduate and Professional Programs Bulletin or contact the Graduate School at 1001 Grove Ave., P.O. Box 843051, Richmond, VA 23284-3051, (804) 828-6916. The Graduate and Professional Programs Bulletin is available, in its entirety, via the Web: <http://www.vcu.edu/graduate>.

Nondegree-seeking graduate students

A student who takes graduate courses without formal admission into a degree

program is classified as a nondegree-seeking graduate student. Such students are required to verify residency and eligibility and obtain written permission from the school or schools in which they intend to take courses. A nondegree-seeking graduate student must hold a baccalaureate degree.

Enrollment in some graduate courses is limited to degree-seeking students or majors. In courses where enrollment is restricted, first priority is given to students admitted to the program, and then to other VCU degree-seeking graduate students. Nondegree-seeking students are not exempt from taking prerequisites for a course. There is no limit to the number of credits a nondegree-seeking student may take, as long as the student's academic performance is credible. However, a nondegree-seeking student who is later admitted as a degree-seeking student may apply only six credit hours earned as a nondegree-seeking student toward the degree. For information about admission as a nondegree-seeking student, contact the Graduate School at (804) 828-6916.

School of Allied Health Professions

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Associate Professor and Associate Dean (1988)
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Stephen C. Harvey

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Assistant Dean (1983)
B.S. 1982 Virginia Polytechnic Institute and State University
M.B.A. 1988 Virginia Commonwealth University

Jeffrey R. Lodge

Director of Information Systems (1992)
B.A. 1987 Emory and Henry College

History

The School of Allied Health Professions was established at Virginia Commonwealth University's Medical College of Virginia Campus on Jan. 1, 1969.

A fundamental reason for the establishment of the School of Allied Health Professions was to provide an administrative structure for existing educational programs in allied health disciplines and to direct the development of new programs in response to the growing need for allied health manpower. At the outset, the school incorporated existing educational programs for hospital administration, medical technology, physical therapy, radiologic technology and X-ray technicians.

A program for nurse anesthesia was inaugurated as a separate department in 1969; an existing educational program in occupational therapy located on the Academic Campus was transferred administratively to the School of Allied Health Professions in 1970; also in 1970, a teaching program in patient counseling formerly based within MCV Hospitals was integrated with the school. Since 1974, a baccalaureate program in radiation sciences, with specific concentrations in education and in administration, has been established. A Ph.D. program in health services, organization and research, the first doctoral program for the School of Allied Health Professions, was introduced in 1982. In 1985, the existing Department of Gerontology was transferred administratively to the School of Allied Health Professions. In June 1988, an executive master's program in health administration was introduced. An entry-level master's degree professional program in physical therapy was initiated for students matriculating in August 1989. In 1995, the Department of Rehabilitation Counseling was transferred to the School of Allied Health Professions from the School of Community and Public Affairs. An interdisciplinary, distance-learning doctoral program, the Ph.D. in Health Related Sciences, began in fall 1998. Recent program developments include the initiation of an entry-level master's degree program in occupational therapy and the subsequent closure of their undergraduate program (1998); the initiation of a Master of Science degree offering in the Department of Patient Counseling (2000); the start of a joint-degree program, the M.D./M.H.A., offered by the Department of Health Administration and the School of Medicine (2001); and the initiation of a Professional Doctor of Physical Therapy Program (2002) to replace the Department of Physical Therapy's entry-level master's degree offering.

Programs

Departments and programs currently in this school and the degrees or certificates conferred on their graduates are:

School of Allied Health Professions

Doctor of Philosophy in Health Related Sciences

Department of Clinical Laboratory Sciences

Bachelor of Science
Master of Science

Department of Gerontology

Master of Science
Postgraduate Certificate in Aging Studies
Postgraduate Certificate in Aging Studies and Master of Social Work – offered in conjunction with the School of Social Work
Postgraduate Certificate in Aging Studies and Master of Science in Rehabilitation Counseling

Department of Health Administration

Master of Health Administration
Master of Health Administration/Juris Doctorate – offered jointly with the T. C. Williams School of Law at the University of Richmond
Master of Health Administration/M.D.
Professional Master of Science in Health Administration online program
Doctor of Philosophy in Health Services, Organization and Research

Department of Nurse Anesthesia

Master of Science in Nurse Anesthesia

Department of Occupational Therapy

Master of Science in Occupational Therapy
Master of Science

Program in Patient Counseling

Post-baccalaureate and Post-master's Certificate in Patient Counseling
Master of Science

Department of Physical Therapy

Doctor of Philosophy – Physical Therapy track offered in conjunction with the departments of Anatomy and Neurobiology, and Physiology in the School of Medicine
Doctor of Physical Therapy

Department of Radiation Sciences

Bachelor of Science

Department of Rehabilitation Counseling

Master of Science

Post-master's Certificate in Professional Counseling

Detailed descriptions of all graduate and professional programs may be found in the Graduate and Professional Programs Bulletin: <http://www.vcu.edu/bulletins>.

Philosophy

The faculty of the school is committed to offering, through the establishment and maintenance of rigorous standards of excellence, undergraduate, graduate and professional education that will prepare students for careers in several allied health disciplines. Development of professional attitudes, emotional maturity and ethical behavior are vital components of the educational process. It is essential that students gain a deep respect for the dignity of man and the inherent rights of patients and others who receive services. Programs are designed to include not only the development of skills to assure excellence in quality of health care, but also such factual knowledge and experiences that will provide the basis for continuing intellectual and professional growth.

Community services of the school and faculty include continuing education, consultative resources and participation in all pertinent areas of health care. An integral part of these efforts is to stimulate and sponsor research activities in the allied health disciplines represented within the school and to encourage interdisciplinary research.

Accreditation

VCU and its component schools are accredited by the Southern Association of Colleges and Schools, the general accrediting agency for colleges in the region. The School of Allied Health Professions is an institutional member of the American Society of Allied Health Professions and the Virginia Association of Allied Health Professions. All of its programs are approved or accredited by the appropriate national professional or educational organizations.

Licensure

Graduates of most of the programs offered in the School of Allied Health Professions are required or eligible to take national/state certification of licensure examinations. Requirements of licensing and certifying agencies vary. Some licensure and certification agencies consider individuals convicted of a felony ineligible for licensure or certification. For specific information, prospective students should contact the licensure or certification agency for their allied health disciplines.

Student performance and behavior

The goals and objectives of the School of Allied Health Professions and its component departments and programs relate to the education of persons preparing for professional careers in the allied health disciplines. An integral requisite of each student and practitioner is an undeviating acceptance of a professional attitude and pride that will motivate him or her to adhere to a code of professional ethics and to develop fully the competencies for practice.

Thus, the suitability of student performance and behavior relating to these professions and to the consumers of health care is a paramount concern of the administration and faculty of this school. Standards of conduct are presented in the "Division of Student Affairs and Enrollment Services" chapter of this bulletin and relate to the students in the School of Allied Health Professions. To assure a quality of educational and clinical preparation for its graduates, the following statement also is promulgated:

If, in the judgment of the faculty/administration of the School of Allied Health Professions, a student is not considered suitable for emotional, professional or related reasons, the student's academic status may be appropriately altered.

If questions arise regarding standards of performance or behavior, it is the responsibility of students to apprise themselves of acceptable character and conduct requirements prior to matriculation in the designated department or program.

Attendance regulations

The faculty considers attendance at lectures, laboratories and other functions a requisite to the successful acquisition of the knowledge and skills required of the professional. The faculty cannot condone absence without good reason from any regularly scheduled educational experience. At the start of each course, the instructor will relate to the class the policy of his or her department concerning attendance regulations for that semester. The nature of make-up work in the event of absence will be the prerogative of the instructor.

Graduate programs

Graduate degree offerings in the School of Allied Health Professions are designated as basic professional or advanced-level programs. Accreditation requirements for the individual programs preclude the establishment of general school admission prerequisites, registration dates, and course and degree requirements. All programs eligible for accreditation are fully accredited by their respective agencies. Refer to the Graduate and Professional Programs Bulletin for more information.

Master of Science in Clinical Laboratory Sciences program

Three graduate level tracks in clinical laboratory sciences are offered. The advanced master's track is designed for students holding a baccalaureate degree in clinical laboratory science (medical technology) and a generalist certification. Candidates may specialize and complete a project or thesis in clinical chemistry, hematology, microbiology, immunohematology or immunology. In addition to the basic science requirement, each student will choose an area of secondary emphasis in biomedical research, education, management or business. The categorical master's track in clinical laboratory sciences is designed for students with a baccalaureate degree in biology or chemistry. This option provides specialized study including a clinical practicum in one of the following areas: clinical chemistry, hematology, microbiology or immunohematology. A project or thesis is required. Upon completion of the program, students are eligible to take a national certification examination in the area in which they performed their concentrated study.

The accelerated master's track integrates undergraduate and graduate course work and leads to the awarding of a B.S. and M.S. degree simultaneously. Upon completion of the program, students are eligible to take a national examination for certification as a CLS/MT generalist.

Master of Science in Gerontology program

The graduate degree program in gerontology prepares individuals for careers involving work with the elderly at the national, state and local levels. The curriculum is designed to provide knowledge for those interested in administration, planning, service delivery and instructional/staff development. A certificate in aging studies and a long-term care certificate in aging studies also are offered.

Graduate programs in health administration

The Master of Health Administration (M.H.A.) program is designed to provide advanced educational preparation in the direction and management of health care organizations. In conjunction with the M.H.A. program, a joint M.H.A./Juris Doctor (M.H.A./J.D.) is offered with the University of Richmond's T. C. Williams School of Law. Another joint degree program, the M.D./M.H.A., is offered in conjunction with VCU's School of Medicine. The Professional Master of Science in Health Administration (M.S.H.A.) online program is designed to provide management preparation for practitioners with five or more years of health care experience. The M.S.H.A. program requires 44 credit hours taken mainly through distance learning and six one-week on-campus sessions over the two years needed for completion. The Ph.D. in Health Services Organization and Research program prepares individuals for positions as faculty, researchers, policy analysts and top-level staff in complex health organizations.

Master of Science in Nurse Anesthesia program

This graduate degree program in nurse anesthesia is designed to prepare the baccalaureate-educated nurse for entry into practice as a nurse anesthetist. The curriculum

combines course work in the basic sciences, the advanced practice of nurse anesthesia and practical skills gained through clinical practica. The program maintains as its primary objective the graduation of superb clinical specialists.

Graduate programs in occupational therapy

The entry-level Master of Science in Occupational Therapy program is a professional program designed for students who wish to become occupational therapists. Applications will be accepted from students who have completed at least three years of baccalaureate course work. An advanced Master of Science Program is offered for those who are registered occupational therapists. This post-professional program is designed individually in special areas of concentration.

Graduate program in patient counseling

The program of patient counseling offers graduate education at the master's and certificate levels designed to assist individuals to work in the health care field in dealing with the whole person in the conflict of life's crises. It promotes the importance of educating qualified persons to address the human dimensions of illness. Patient counseling is the practice of communicating empathetic concern, support and sensitive spiritual counsel to the physically or emotionally troubled person in the traumas of life. Patient counseling emphasizes a systems perspective on care, both in promoting an interprofessional team approach and in understanding counseling assessment/intervention within the context of family as well as social systems. It is offered to persons who have an existing identity in a helping or counseling profession. This includes clergy, social workers, institutional counselors, education specialists, psychologists, community health workers and others in the health care professions.

Graduate program in physical therapy

A three-year professional education program, the Doctor of Physical Therapy program serves as an entrance into the profession. The goal of this program is to prepare physical therapists that have the

basic skills, knowledge and attitudes to function effectively in the multifaceted role of a physical therapist. Prerequisites for admission to the program include a Bachelor of Arts or Science degree from an accredited college or university. Students who have completed the program earn a Doctor of Physical Therapy degree and are eligible for the physical therapy licensure exam. A Doctor of Philosophy program, offered in conjunction with the departments of Anatomy and Neurobiology, and Physiology in the School of Medicine, is offered to train students in research and education skills in preparation for the students to function as physical therapy faculty members.

Master of Science in Rehabilitation Counseling

The master's degree program in rehabilitation counseling prepares students to become certified rehabilitation counselors who provide direct professional service and administrative leadership in agencies and organizations involved with mental and physical disabilities. Admission is based on an applicant's suitability for a career in rehabilitation counseling and other factors such as emotional maturity, previous work experience, scholarship, recommendations and a personal interview. The advanced certificate in professional counseling is designed to help students fulfill the post-master's requirements for the licensed professional counselor credentials in Virginia and other states. The additional training also helps students to achieve national certification in such counseling specialties as rehabilitation, mental health, marriage and family, and alcohol and drug abuse.

Doctor of Philosophy in Health Related Sciences

The Ph.D. in Health Related Sciences is an innovative distance-learning course of doctoral study designed for the mature and experienced professional seeking doctoral education for continued career advancement in the allied health professions. The program was designed with the cooperation and commitment of the nine departments in the School of Allied Health Professions to meet the critical need for doctoral-level faculty and researchers. The program involves a four-year course of study divided into two semesters per year, and composed of both

on- and off-campus sessions. The 51-credit curriculum is divided into a common interdisciplinary core, a research methods core, specialty track courses and dissertation research. To be considered for admission, applicants must hold a master's degree from an approved institution of higher learning.

It is the intent that the regulations and procedures for each program ensure the selection of applicants whose motivation, ability, character and health status qualify them to successfully pursue graduate study. Specific information may be found in the Graduate and Professional Programs Bulletin or is available from the departmental graduate coordinator. Information also is available on the VCU Graduate School home page under the School of Allied Health Professions, link: <http://www.vcu.edu/graduate/gp>.

Courses in allied health professions (ALHP)

ALHP 391 Special Topics

Semester course; 1-4 credits. Prerequisite: Permission of instructor. Offered for undergraduate level. Interdisciplinary study through lectures, tutorial study or independent research of selected topics not provided in other courses.

ALHP 401 Instructional Strategies

Semester course; 3 lecture hours. 3 credits. This course is designed to introduce the student to learning theory, instructional design, evaluation and methodology. Emphasis will be placed on the study of applying principles and techniques of teaching in all areas of allied health education.

ALHP 425 Economics of Health Care

Semester course; 4 credits. Examines the topic of economics as it affects the field of health information management. Approaches broad economic and financial concepts as applied to policy making in the health care industry. Emphasizes the budget process in health care institutions as it affects individual departments and how it requires accountability of each.

ALHP 594 Health Education Practicum

Semester course; 1 lecture and 4 laboratory hours. 1-6 credits. Prerequisite: ALHP 573. Preparation, presentation and evaluation of selected educational experiences in the appropriate graduate program. Section 01: General; Section 02: Nurse Anesthesia; Section 03: Clinical Laboratory Sciences.

ALHP 596 Supervisory and Administrative Practicum in Allied Health Clinics

Semester course; 60 clinical hours per credit. 1-9 credits. Prerequisite: Permission of instructor. The course is designed for the student who will be assuming supervisory and administrative roles. Areas to be covered include clinical personnel management, budgeting and ordering of materials and equipment, consultation with physicians, developing and troubleshooting clinical methods, designing job descriptions and implementation of quality control programs. Section 01: Clinical Laboratory Sciences Section 02: Physical Therapy.

Department of Clinical Laboratory Sciences

Barbara J. Lindsey

Associate Professor and Department Chair (1975)
R.T. 1971 Mohawk College
M.S. 1977 Virginia Commonwealth University

History

Clinical laboratory scientists have been trained on the Medical College of Virginia Campus since 1927. However, the Department (formerly school) of Medical Technology was not formally established until 1952 at which time the curriculum included six months of didactic experience with lectures and laboratory sessions held in the department, followed by a six-month rotation through the clinical laboratories. The school offered a certificate and/or degree program that met the requirements of the American Medical Association as implemented through the Board of Schools of the American Society of Clinical Pathologists (ASCP). The certificate program was discontinued during the 1961-62 school year, and all students accepted were required to previously have completed 90 semester hours, which included medical technology prerequisites. Upon completion of the course, the students were awarded a Bachelor of Science degree.

Beginning with the 1974 fall semester, the curriculum was expanded to the current two-year program. Students must have completed 60 semester hours, including medical technology prerequisites, before entrance into the baccalaureate program.

The graduate program in clinical laboratory sciences was started in 1967 to provide advanced education for certified medical technologists/clinical laboratory scientists.

In 1981 the program was modified to accept part-time students and in 1985 to allow candidates holding a degree in another area of science to obtain graduate education in clinical laboratory sciences.

In 1994, the department name was changed to the Department of Clinical Laboratory Sciences.

Mission

The Department of Clinical Laboratory Sciences, in concord with the mission statements of the School of Allied Health Professions and the university, provides an envi-

ronment that nurtures excellence in education, research and service.

The department provides the student with superior studies in clinical laboratory science, including both theoretical and applied clinical education, and develops problem-solving expertise, leadership capabilities and communication skills. A mature, responsible approach to the acquisition of knowledge is cultivated in order to establish the student's continued intellectual growth and enthusiasm for the profession. The department fosters fair and equitable educational experiences for students of all ages and diverse backgrounds. Strong affiliations with clinical educators and the integration of innovative technology in the academic setting facilitate both the education and research goals of the department.

The department meets the growing health care needs of the community by providing highly competent and professional clinical laboratory scientists who will be able to function effectively upon entrance into the field and be prepared to explore future scientific and technological advances in laboratory science.

The department promotes continued professional development and personal growth for the faculty and staff to fulfill and balance the individual's abilities and aspirations with the departmental, school and institutional mission and needs. Members of the department conduct themselves in a forthright, ethical manner and practice the highest standard of quality performance.

Objectives

The objectives of the Department of Clinical Laboratory Sciences are:

- to provide an educational program that prepares students to accurately perform and evaluate analytical tests on body fluids, cells and products.
- to foster the development of professional conduct, interpersonal communication skills and ethical principles.
- to develop and promote strategies for lifelong learning and to encourage continued professional growth through research, continued education and active participation in professional societies.

Accreditation

The undergraduate program in clinical laboratory sciences is accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 8410 W. Bryn Mawr Ave., Suite 670, Chicago, IL 60631-3415; (773) 714-8880. Upon graduation the student is eligible to take the national examinations for MT/CLS given by the Board of Registry of the American Society for Clinical Pathology and the National Credentialing Agency for Laboratory Personnel, Inc.

Facilities

The Department of Clinical Laboratory Sciences is located in the Randolph-Minor Annex Building on the MCV Campus. All faculty and clerical offices are located in this facility, as well as student classrooms, general teaching laboratory, computer facilities and a student lounge/reading room.

The teaching laboratories are well equipped with the latest instrumentation used in today's methods of laboratory medicine.

Honors and awards

A. D. Williams Award

An annual award may be made, on nomination of the faculty, to students in each class who demonstrate, by virtue of high scholastic attainment and professional performance, unusual promise and ability. Character, motivation, intellectual curiosity and realization of the opportunities for personal development will be considered. The award is made at the end of the junior and senior years.

Achievement awards

These awards may be given for outstanding achievement in each discipline of clinical laboratory sciences. The awards are given at graduation.

Daria Downing Scholarship Award

This award is in memory of Miss Daria Downing, who was the chief technologist of the clinical laboratories of MCV Hospitals from 1964 until her death in 1982. This award is given in December to an outstanding senior student in the Department of Clinical Laboratory Sciences.

Kupfer Award

This award was first given in 1965 in memory of Dr. Henry G. Kupfer, who was medical director of the School of Medical Technology from 1952 until his death in 1964. It is given to the senior who is considered to be the best all-around technologist. Throughout the program this student must demonstrate an outstanding sense of responsibility in all phases of clinical laboratory science, a keen concern for the patients and the ability to work with others. The student must show a desire for personal and professional growth. The recipient of the award is selected by instructors in the clinical rotations and the faculty of the Department of Clinical Laboratory Sciences.

Financial aid – general

Financial aid is available for all students meeting the criteria for financial assistance. For details of the programs available contact the Financial Aid Office, P.O. Box 980244, Richmond, VA 23298-0244 or telephone: (804) 828-9800.

Bachelor of Science in Clinical Laboratory Sciences program

Clinical laboratory scientists receive training in the following areas: clinical biochemistry, the study of chemical reactions that occur in normal and diseased processes; hematology, the study of the cellular elements of the blood and blood-forming tissues; microbiology, the study of microbiological aspects of infectious disease and the isolation and identification of pathogenic bacteria; immunohematology, the application of theory and principles of blood banking, cell typing, compatibility testing and antibody identification; and immunology, the study of antigen and antibody interaction in the diagnosis of disease. With the rapid advancement of knowledge in the field of laboratory medicine, there is a growing need for highly skilled and knowledgeable clinical laboratory scientists. Employment is found in hospitals, physicians' offices, research facilities, molecular diagnostic, biotechnology, electronic or instrumentation laboratories, industrial quality control, veterinary clinics, and sales and service of health care equipment. In addition to the technical arena, opportunities as managers or consultants exist for graduates of this program.

Admission and general requirements

To qualify for admission, a candidate must have completed a minimum of 60 semester hours of collegiate training in any college or university approved by a recognized regional accrediting agency. Accredited collegiate training in preparation for the study of clinical laboratory sciences, as for any professional career, should provide the opportunity for broad general education to include English, the social sciences, the arts and the humanities.

Upon entry into the department, the student must have completed 12 hours of chemistry (eight hours of general required; the remaining four hours in the order of preference: quantitative, organic or qualitative; other courses may be accepted); 12 hours of biology (preferred four hours of general, four hours of human physiology and four hours of human anatomy; other courses may be accepted); three hours of mathematics; six hours of English composition; three hours of humanities (select from courses in history, philosophy, political science, religion, foreign languages, literature, art history or art appreciation); three hours of social sciences (select from courses in anthropology, economics, geography, psychology, social science or sociology) and one hour of art.

In lieu of a formal course, demonstrated competence in a visual or performing art will be accepted. Acceptable competency includes (1) completion of extracurricular formal instruction independent of structured school activities once per week for a minimum of 18 months within the last 10 years or (2) completion of an AP studio art course or (3) prior training coupled with current routine performances in an organized theatre company, gallery or orchestra/band.

Special admission

Certified medical laboratory technicians (or those eligible for certification) may qualify for special admission. An MLT (CLT) applicant must have a minimum of 44 non-MLT semester hours of transferable credit for admission as a full-time student or 38 non-MLT semester hours for admission as a part-time student. The transfer hours must include eight hours of biology, eight hours of chemistry, three hours of mathematics and six hours of English composition. MLTs admitted under special status are

required to complete the science, humanities, social sciences and art requirements for regular admission before they qualify for graduation.

CLS credit may be granted for upper-level course requirements through challenge examinations or exemptions based on documented competencies, depending upon a student's past academic performance in previous course work and clinical experience. MLTs (CLTs) who meet the exemption eligibility requirements for the junior-level laboratory portions of the curriculum may take the CLS course work online (currently restricted to individuals living in Virginia).

Deadline for submission of applications is May 1. Those received after the deadline will be considered if space is available. Admission notification is done on a rolling basis after receipt of application materials. Detailed information regarding admission requirements and an application may be obtained by writing to Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632, or to Virginia Commonwealth University, Department of Clinical Laboratory Sciences, P.O. Box 980583, Richmond, VA 23298-0583, or from the Web at <http://www.sahp.vcu.edu/cls>.

Accelerated Master of Science in Clinical Laboratory Sciences Program

The accelerated Master of Science program integrates undergraduate and graduate course work and leads to the awarding of a B.S. and an M.S. degree simultaneously. The student must complete a minimum of 114.5 undergraduate credit hours including 60 prerequisite credit hours and 54.5 credit hours of professional course work in clinical laboratory sciences. A minimum cumulative GPA on CLLS courses of 2.7 and completion of the GRE are required for admission into the graduate portion of the program. The candidate must complete at least 40 additional hours of graduate level course work. (Refer to the VCU Graduate and Professional Programs Bulletin for details of the program.) Upon completion of the curriculum, students are eligible to take the national certification examinations for the CLS/MT generalist. Students pursuing the accelerated program must initially qualify for admission to the Bachelor of Science

program with a major in clinical laboratory sciences as outlined in the previous section.

Academic regulations

The minimum passing grade for all professional courses leading to the Bachelor of Science degree is "D." All courses must be completed with a passing grade for the student to be eligible for promotion or graduation. Satisfactory completion of the previous semester's course work is a prerequisite to the next semester.

Promotion is based on recommendations of the faculty. The student is expected to do all of the following:

- maintain a GPA of 2.0 or better,
- obtain a passing grade in all courses,
- complete the clinical education requirements to the satisfaction of the clinical and academic faculty,
- exhibit the attitudes and skills deemed necessary to function as a professional clinical laboratory scientist, and
- pay all fees.

Detailed grading policies plus the mechanism for grade appeals are given to each entering student during orientation.

Curriculum

Variable credit is offered in consideration of the differing academic backgrounds of entering students. Semester hours given for each course are those required of the traditional student with no previous clinical training.

Junior year	credits
CLLS 301-302 Hematology	7.5
CLLS 303 Parasitology	1.0
CLLS 304 Clinical Microscopy	2.0
CLLS 306 Immunohematology	4.5
CLLS 307 Introduction to Pathogenic Microbiology	3.0
CLLS 308 Pathogenic Microbiology	5.0
CLLS 310 Clinical Immunology	4.5
CLLS 311-312 Biochemistry	8.0
CLLS 314 Clinical Instrumentation	3.0
Summer session	
CLLS 337 Clinical Education	1.0
	39.5

Senior year

CLLS 407 Interpretive Immunohematology	2.5
CLLS 408 Advanced Microbiology	2.0
CLLS 409 Interpretive Hematology	2.0
CLLS 410 Advanced Clinical Biochemistry/Instrumentation	2.0
CLLS 411 Principles of Education/Management	3.0
CLLS 412 Clinical Correlations	1.0
CLLS 415 Special Topics in Clinical Laboratory Sciences (optional)	1-6
CLLS 483 Biochemistry Practicum	3.0
CLLS 485 Hematology Practicum	3.0
CLLS 493 Clinical Microbiology Practicum	3.0
CLLS 494 Miscellaneous Clinical Practicum	3.0
CLLS 496 Blood Bank Practicum	3.0
CLLS 438 Research Paper (optional)	1.0
	27.5-34

Upon completion of prerequisite courses and the prescribed curriculum listed above, graduates of the Clinical Laboratory Sciences program will have fulfilled the general education requirements of VCU.

Courses in clinical laboratory sciences (CLLS)

CLLS 201 Introduction to Clinical Laboratory Science

Semester course; 1 lecture hour. 1 credit. Open to students on the Academic Campus who are interested in clinical laboratory science/medical technology as a career. Presentation and discussion of clinical laboratory science including an introduction to each of the specific areas of concentration, job opportunities in the profession and a tour of a hospital laboratory. Graded as pass/fail.

CLLS 300 Basic Concepts

Semester course; 1 lecture and 1 laboratory hour. 1.5 credits. An introduction to the basic concepts/techniques applicable to all laboratory science areas. Includes optical physics, quality control, laboratory safety, medical terminology and pipetting techniques along with other basic subjects.

CLLS 301-302 Hematology

Continuous course; 4.5 lecture and 6 laboratory hours. 2-7.5 credits. A study of the blood and blood-forming tissues. Emphasis is placed on hematologic techniques, accurate identification of normal and abnormal cells and their correlation with normal or pathologic conditions. An introduction to the hemostatic mechanism also is presented.

CLLS 303 Parasitology

Semester course; 1 lecture hour. 0.5-1.5 credits. A study of the life cycles of parasites and techniques used for isolation and identification of common parasites found in humans.

CLLS 304 Clinical Microscopy

Semester course; 1.5 lecture and 1 laboratory hour. 1-2 credits. A study of the principles and practices of urinalysis, kidney function, gastric analysis, cerebrospinal fluid and other body fluids.

CLLS 306 Immunohematology

Semester course; 2.5 lecture and 4 laboratory hours. 2-5 credits. Prerequisite: CLLS 310. A study of the theory and principles of blood banking with an emphasis on methods and techniques used in the laboratory for cell typing, cross-matching and antibody identification.

CLLS 307 Introduction to Pathogenic Microbiology

Semester course; 3 lecture hours. 1-3 credits. Fundamental principles of diagnostic pathogenic microbiology.

CLLS 308 Pathogenic Microbiology

Semester course; 3 lecture and 4 laboratory hours. 3-5 credits. Prerequisite: CLLS 307 or permission of instructor. The study of bacteria, fungi, viruses, antimicrobial susceptibility testing and quality control; the relationship of bacteria, fungi and viruses to infectious diseases including pathogenesis and epidemiology. Emphasis is placed on the techniques, methods and procedures required to isolate and identify pathogenic micro-organisms.

CLLS 310 Clinical Immunology

Semester course; 3.5 lecture and 2 laboratory hours. 3-4.5 credits. Introduces the basic principles of immunology, serology and molecular diagnostics. Emphasis is placed on laboratory evaluation of the immune response including both cellular and humoral aspects. Serologic techniques are practiced in the laboratory sessions.

CLLS 311-312 Biochemistry

Continuous course; 6 lecture and 4 laboratory hours. 2-8 credits. A study of metabolism in normal and disease processes of the body. Emphasis is placed on the principles and methods used in testing biochemical reactions.

CLLS 314 Clinical Instrumentation

Semester course; 2 lecture and 2 laboratory hours. 1-3 credits. Covers instrumentation found in clinical laboratories, including an introduction to electronic principles as applied to instrumentation. Course will examine the theory and application behind the various analytical methods used in clinical analysis.

CLLS 337 Clinical Education

Semester course; 120 clock hours. 1 credit. Offered: S. Supervised clinical experience in hospitals across the state is designed to give the student a broader clinical education and to provide venipuncture experience. In addition to the application of academically acquired knowledge, this affiliation provides an opportunity for the student to correlate each area of study into one composite picture for final laboratory diagnosis. Closer working relationships with other allied health personnel is an important aspect of this affiliation. Graded as pass/fail.

CLLS 407 Interpretive Immunohematology

Semester course; 2.5 lecture hours. 2-2.5 credits. Prerequisites: CLLS 306 and 310, or permission of instructor. Advanced study of the principles of immunohematology and immunology with major emphasis on blood group systems and blood components. Includes the application of laboratory data and techniques to solve problems in blood banking and immunology.

CLLS 408 Advanced Microbiology

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 307 and 308, or permission of instructor.

Advanced study of the principles of pathogenic microbiology. Includes the application of laboratory data and techniques to solve problems in the clinical microbiology laboratory.

CLLS 409 Interpretive Hematology

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 301-302 and 485, or permission of instructor. Advanced study of the principles of hematopoiesis and their pathophysiological correlation to hematological disorders. Interpretation of morphological findings are correlated with case histories. Includes homeostatic problems.

CLLS 410 Advanced Clinical Biochemistry/Instrumentation

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLLS 311-312 and 314, or permission of instructor. Presents an advanced study of (1) the principles of clinical chemistry as related to intermediary metabolism and pathology and (2) laboratory and hospital information systems. Includes the application of laboratory data and technologies to solve problems in analytical methods and instruments.

CLLS 411 Principles of Education/Management

Semester course; 3 lecture hours. 2.5-3.5 credits. Introduces fundamental educational theories and practice, principles of management and employee relations and health care issues from a global perspective with an emphasis on multicultural diversity. Stresses the application of these theories in the clinical laboratory.

CLLS 412 Clinical Correlations

Semester course; 1 lecture hour. 1 credit. Seminars are presented on various aspects of professionalism, and the interrelationships of the various laboratory disciplines are discussed during review sessions. A simulated registry exam is given at the conclusion. Graded as pass/fail.

CLLS 415 Special Topics in Clinical Laboratory Sciences

Semester course; 1-6 credits. Course provides for tutorial studies, laboratory experience and/or library assignments in specialized areas for those students who have previous course work or laboratory experience in a specific subject.

CLLS 438/HONR 492 Research Paper

Semester course; 1 lecture hour. 1 credit. This course is designed to introduce the student to the fundamentals of scientific writing.

CLLS 483 Biochemistry Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 311-312. Individual participation in hospital chemistry laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, students are expected to perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 485 Hematology Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302. Individual participation in hospital hematology laboratories. Students gain practical experience in the use of procedures and instruments by working with the staff. After gaining competence, the students are expected to perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 493 Clinical Microbiology Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 307-308. Individual participation in hospital bacteriology laboratories. Students gain practical experience in the performance and use of procedures by working with the clinical staff. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 494 Miscellaneous Clinical Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisites: CLLS 301-302, 308, 310, 311-312 or permission of instructor. Students gain practical experience in the use of instruments and the performance of procedures by working with the clinical staff. After gaining competence, students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

CLLS 496 Blood Bank Practicum

Semester course; 40-180 clock hours. 1-4.5 credits. Prerequisite: CLLS 306. Individual participation in hospital blood bank laboratories and Virginia Blood Services. Students gain practical experience in the use of procedures and instruments by working with the staff. Donor drawing and component preparation is observed. After gaining competence, the students are expected to properly perform and sign out routine laboratory work under supervision. Graded as pass/fail.

Department of Radiation Sciences

Terri L. Fauber

Associate Professor and Department Chair (1985)
B.S. 1982 University of Texas
M.A. 1985 Louisiana Tech University
Ed.S. 1991 The College of William and Mary
Ed.D. 1996 The College of William and Mary

History

Radiologic technology education began at the Medical College of Virginia in the 1930s with a one-year training program in radiography. This program has undergone a number of changes through the years to evolve into the current baccalaureate educational program.

A concentration in nuclear medicine technology was added in 1984 and in radiation therapy in 1992. Degree completion programs have been added to provide an opportunity for certified technologists and therapists to complete requirements for the baccalaureate degree.

Programs

A Bachelor of Science in Clinical Radiation Sciences is offered in the following areas of concentration: radiography, nuclear medicine technology and radiation therapy. These full-time programs include general education and professional course work over

a three-year period. Graduates of each of the programs are eligible for national certification examinations in their respective area of concentration.

Degree completion programs

Full- or part-time opportunities to complete a baccalaureate degree are offered for technologists or therapists certified by the American Registry of Radiologic Technologists and/or the Nuclear Medicine Technology Certification Board. In addition to general education and professional course work, the student selects electives from a wide variety of courses, allowing the design of a program that best meets the goals and interests of the individual. For more information, contact the department.

Mission

The Department of Radiation Sciences is an integral part of the School of Allied Health Professions and shares its values. The department serves as a national leader in the education of students in the radiation sciences and provides learning opportunities that are innovative and educationally sound. Strong linkages with clinical affiliates and their staff are vital to the department's success. Faculty and staff work in a cooperative spirit in an environment conducive to inquisitiveness and independent learning to help a diverse student body develop to its fullest potential. The faculty is committed to the concept of lifelong learning and promotes standards of clinical practice that will serve students throughout their professional careers. Faculty serve as a resource for professionals in practice and contribute to an expanded knowledge base in the field of clinical radiation sciences.

Goals

The goals of the Department of Radiation Sciences are to:

1. deliver thoughtfully developed curricula in radiation sciences for individuals preparing for professional practice,
2. provide an educational atmosphere that will engender intellectual curiosity and commitment to lifelong learning,
3. cultivate professional behavior and ethical conduct,

4. promote research and scholarly activity in the radiation sciences and health related sciences, and
5. offer timely, relevant educational opportunities that encourage practicing professionals to complete a baccalaureate degree.

Accreditation

The radiography and radiation therapy programs are accredited by the Joint Review Committee on Education in Radiologic Technology. The nuclear medicine technology program is accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. Upon completion of one of the concentrations, the graduate is eligible for the relevant national certification examination administered by the American Registry of Radiologic Technologists. Graduates of the nuclear medicine technology program also are eligible for the certification examination administered by the Nuclear Medicine Technology Certification Board.

Facilities

The educational facilities for the Department of Radiation Sciences are located at 701 W. Grace St., Suite 2100. These facilities include energized laboratories in radiography and mammography. The radiography laboratory includes a digital imaging system. In addition, the radiation therapy laboratory has a 3-D Treatment Planning System.

During the various phases of the curriculum, students will be assigned to one or more of the following affiliate institutions: VCU Health System's Medical College of Virginia Hospitals, McGuire Veterans Affairs Medical Center and Richmond Division of Columbia HCA Hospitals.

Honors and awards

A. D. Williams Award

This award is given to the student in each class who has achieved the highest cumulative GPA.

A. D. Williams Scholarship

This scholarship may be awarded to students who demonstrate high scholastic attainment, professional clinical perform-

ance and unusual promise as a radiologic technologist.

Senior awards

An award may be given to a graduating senior in each curriculum in recognition of outstanding overall performance. Selection is based on cumulative GPA, faculty recommendations and clinical performance.

- Radiography – Amersham Award
- Nuclear Medicine – Mallinckrodt Award
- Radiation Therapy – Varian Medical Systems Award

Tina Plaster Memorial Award

This award honors a member of the class of 1992 who was tragically killed during the term of her program and recognizes a rising radiography senior who displays the following characteristics associated with Ms. Plaster: excellent academic standing, good attendance, excellent patient care and high standards of professionalism.

The Elizabeth Blackburn Award in Nuclear Medicine Technology

This award was established as a permanent endowment from Dr. Alton R. Sharpe. Sharpe, a 1954 graduate of the Medical College of Virginia, was MCV's first full-time chair of the Division of Nuclear Medicine. Prior to his retirement, Sharpe was on the School of Medicine faculty for over 35 years. The honoree, Mrs. Elizabeth Blackburn, was the chief technologist in nuclear medicine and a member of the faculty for 18 years. Sharpe credits Blackburn with teaching him the rudiments, fundamentals and applications of nuclear medicine.

Chris Dickerson Memorial Award

Davis "Chris" Dickerson was tragically killed in a cycling accident on Sept. 2, 2002. He graduated in 1996 from VCU's Department of Radiation Sciences Nuclear Medicine Technology Program. Dickerson worked for the VCU Health System for several years after his graduation and is fondly remembered by former classmates, co-workers and friends.

This award is presented to a graduating senior in the Nuclear Medicine Technology

Program for displaying outstanding character and attributes associated with Dickerson. In particular, the recipient demonstrates compassion and kindness, exhibits a positive and cheerful attitude, serves as a positive role model, and is a team player. Selection is made by VCU Health System technologists and with faculty recommendations.

The VCU Health System Nuclear Medicine Department sponsors the Chris Dickerson Memorial Award and the monetary award is provided by Amersham Health.

Bachelor of Science in Clinical Radiation Sciences Program

Admission requirements

Candidates for admission to any of the three concentrations must have completed high school or have passed a GED examination, and have completed the following postsecondary courses:

	Prerequisites (or VCU equivalent)
3 credits of college algebra	MATH 141
3 credits of general psychology*	PSYC 101
3 credits of composition and rhetoric	ENGL 101
3 credits of an elective	
3 credits of a humanities	
8 credits of human anatomy** and physiology	BIOL 205, BIOZ 205L, PHIS 206, PHIZ 206L
4 credits of college physics	PHYS 101 and PHYZ 101L

* At VCU, PSYC 101 Introduction to Psychology is four credits.

** At VCU, BIOL 205 Basic Human Anatomy and its laboratory require four credits of biology with a "C" or better as a prerequisite.

Transcripts of postsecondary work must be submitted with the application. Candidates also must submit personal references and complete an interview with a member of the admissions committee. Applicants are encouraged to obtain some knowledge of the concentration to which they are applying by observing in the appropriate hospital department or by working as a hospital volunteer.

Applications must be submitted by Feb. 1 of each year. Applications submitted after that date can be accepted only on a space-available basis. Correspondence should be sent to Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632.

General education requirements

1. Communicating

- ENGL 101 and ENGL 200 Writing and Rhetoric Workshop I and II or equivalent – six credits
- CLRS 208 Foundations of Patient Care – three credits, writing intensive
- CLRS 390 Research Methods in the Radiation Sciences – two credits; writing intensive
- CLRS 498 Senior Project – two credits, writing intensive

2. Ethics

- CLRS 208 Foundations of Patient Care – three credits
- CLRS 393-394, 395, 493 and 494 Clinical Education I-V – seminars associated with each clinical course
- PHIL 213 Ethics and Health Care – three credits (Nuclear Medicine only)

3. Quantity and form

- MATH 141 Algebra with Applications or equivalent – four credits
- STAT 210 Basic Practice of Statistics or equivalent – three credits
- CLRS 232 Radiation Safety – two credits
- CLRS 341 Radiation Physics – two credits
- CLRS 320 Radiographic Imaging and Exposure II – two credits (Radiography only)
- CLRS 461 Radiopharmaceutical: Preparation and Quality Control – two credits (Nuclear Medicine only)
- CLRS 323 Radiation Therapy, Techniques and Applications – four credits (Radiation Therapy only)

4. Science and technology

- PHYS 101 Foundations of Physics – four credits
- BIOL 205, 206, BIOZ 205L, 206L Basic Human Anatomy and Human Physiology and laboratories or equivalent – eight credits
- CHEM 101-102, CHEZ 101L-102L General Chemistry and laboratories or equivalent – eight credits (Nuclear Medicine only)

5. Interdependence

- CLRS 393-394, 395, 493 and 494 Clinical Education I-V – seminars associated with each clinical course
- HCMG 300 Health Care Organization and Services – three credits

6. Visual and performing arts

- Elective – one credit

7. Humanities and social sciences

- PSYC 101 Introduction to Psychology – four credits
- Humanities elective – three credits

Academic regulations

To continue in the respective program, the student is expected to:

1. maintain a minimum semester GPA and cumulative GPA of 2.0,
2. obtain a passing grade in all required courses and a "C" or better in all professional courses indicated with an asterisk in the curriculum outline and
3. demonstrate the attitude and skills necessary to function as a professional in the selected area of concentration as assessed by academic and clinical faculty.

Curriculum

Radiography concentration

	credits	
	fall	spring
Sophomore year		
CLRS 200 Medical Terminology for the Radiation Sciences	1	-
CLRS 201 Radiographic Imaging and Exposure I*	-	2
CLRZ 201L Radiographic Imaging and Exposure I Laboratory*	-	1
CLRS 203-204 Pathophysiology I and II	3	3
CLRS 205 Exploring Radiation Sciences	1	-
CLRS 206 Cross-sectional Anatomy*	2	-
CLRS 208 Foundations of Patient Care*	3	-
CLRS 211 Radiographic Procedures I*	-	4
CLRS 232 Radiation Safety*	-	2
CLRS 294 Introduction to Clinical Education I*	-	1
ENGL 200 Writing and Rhetoric Workshop II	3	-
STAT 210 Basic Practice of Statistics	3	-
Elective+	-	1
	16	14
Summer I		
CLRS 212 Radiographic Procedures II*	2	
CLRS 295 Introduction to Clinical Education II*	2	
	4	
Junior year		
CLRS 312 Radiographic Procedures III*	1	-
CLRS 320 Radiographic Imaging and Exposure II*	2	-
CLRZ 320L Radiographic Imaging and Exposure II Laboratory*	1	-
CLRS 331 Radiographic Imaging Equipment*	3	-
CLRS 332 Radiographic Pathology	-	3
CLRS 341 Radiation Physics	2	-
CLRS 351 Quality Management in Radiography*	-	2
CLRZ 351L Quality Management in Radiography Laboratory*	-	1
CLRS 390 Research Methods in the Radiation Sciences	2	-
CLRS 393-394 Clinical Education I and II*	5	5

School of Allied Health Professions

CLRS 398 Introduction to Research Restricted elective	-	1	-	3
Elective ⁺	-	1	-	1
	<hr/>	<hr/>	<hr/>	<hr/>
	16	16		

Summer II

CLRS 395 Clinical Education III*	6			
	<hr/>			
	6			

Senior year

CLRS 430 Radiobiology*	-	2		
CLRS 488 Senior Seminar	-	3		
CLRS 498 Senior Project	2	-		
HCMG 300 Health Care Organization and Services	3	-		
Restricted electives	11	11		
	<hr/>	<hr/>	<hr/>	<hr/>
	16	16		

Total credits **131**

* "C" is the lowest passing grade.

⁺ Elective credits must include a minimum of one credit in visual/performing arts.

Radiation therapy concentration

	credits			
	fall	spring		
Sophomore year				
CLRS 200 Medical Terminology for Radiation Sciences	1	-		
CLRS 203-204 Pathophysiology I and II	3	3		
CLRS 205 Exploring Radiation Sciences	1	-		
CLRS 206 Cross-sectional Anatomy	-	2		
CLRS 208 Foundations of Patient Care*	3	-		
CLRS 232 Radiation Safety*	-	2		
ENGL 200 Writing and Rhetoric Workshop II	-	3		
HCMG 300 Health Care Organization and Services	3	-		
STAT 210 Basic Practice of Statistics	3	-		
Electives ⁺	2	6		
	<hr/>	<hr/>	<hr/>	<hr/>
	16	16		

Summer I

CLRS 305 Orientation to Radiation Therapy*	2			
	<hr/>			
	2			

Junior year

CLRS 309 Oncologic Patient Care*	2	-		
CLRS 314 Pathology and Treatment Principles I*	-	4		
CLRS 323 Radiation Therapy, Techniques and Applications*	4	-		
CLRS 341 Radiation Physics	2	-		
CLRS 342 Physics for Radiation Therapy*	-	3		
CLRS 390 Research Methods in the Radiation Sciences	2	-		
CLRS 393-394 Clinical Education I and II*	4	4		

CLRS 398 Introduction to Research Restricted electives	-	1	-	3
Electives	2	-		
	<hr/>	<hr/>	<hr/>	<hr/>
	16	15		

Summer II

CLRS 395 Clinical Education III*	6			
	<hr/>			
	6			

Senior year

CLRS 408 Introduction to Computed Tomography (CT)	3	-		
CLRS 412 Radiation Therapy Treatment Planning	-	3		
CLRS 415 Pathology and Treatment Principles II	3	-		
CLRS 430 Radiobiology*	-	2		
CLRS 455 Quality Management in Radiation Therapy*	-	2		
CLRS 488 Senior Seminar	-	3		
CLRS 493 and 494 Clinical Education IV and V*	5	5		
CLRS 498 Senior Project	2	-		
Restricted electives	3	-		
	<hr/>	<hr/>	<hr/>	<hr/>
	16	15		

Total credits **129**

* "C" is the lowest passing grade.

⁺ Elective credits must include a minimum of one credit in visual/performing arts.

Nuclear medicine technology concentration

	credits			
	fall	spring		
Sophomore year				
CHEM 101-102 and CHEZ/FRSZ 101L-102L General Chemistry and Laboratory	4	4		
CLRS 200 Medical Terminology for Radiation Sciences	1	-		
CLRS 203-204 Pathophysiology I and II	3	3		
CLRS 205 Exploring Radiation Sciences	1	-		
CLRS 208 Foundations of Patient Care*	3	-		
CLRS 232 Radiation Safety*	-	2		
ENGL 200 Writing and Rhetoric Workshop II	-	3		
HCMG 300 Health Care Organization and Services	3	-		
STAT 210 Basic Practice of Statistics	-	3		
	<hr/>	<hr/>	<hr/>	<hr/>
	15	15		

Summer I

CLRS 303 Orientation to Nuclear Medicine*	2			
	<hr/>			
	2			

Junior year

CLRS 206 Cross-sectional Anatomy	2	-		
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CLRS 317 Nuclear Medicine Procedures I*	3	-		
CLRS 318 Nuclear Medicine Procedures II*	-	2		
CLRS 321 Nuclear Medicine Instrumentation and Computer Techniques I*	2	-		
CLRS 322 Nuclear Medicine Instrumentation and Computer Techniques II*	-	2		
CLRZ 328L Nuclear Medicine Instrumentation and Image Processing Laboratory*	1	-		
CLRS 341 Radiation Physics	2	-		
CLRS 342 Physics for Radiation Therapy*	-	3		
CLRS 390 Research Methods in the Radiation Sciences	2	-		
CLRS 393-394 Clinical Education I and II* (16 hours/week)	4	4		
CLRS 398 Introduction to Research Restricted elective	-	1		
Elective ⁺	-	3		
	<hr/>	<hr/>	<hr/>	<hr/>
	16	16		

Summer II

CLRS 319 Nuclear Medicine Procedures III*	3			
CLRS 395 Clinical Education III* (32 hours/week for 10 weeks)	5			
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	8			

Senior year

CLRS 417 Nuclear Medicine Procedures IV*	3	-		
CLRS 430 Radiobiology*	-	2		
CLRS 453 Quality Management in Nuclear Medicine*	-	3		
CLRS 461 Radiopharmaceutical: Preparation and Quality Control*	2	-		
CLRS 488 Senior Seminar	-	3		
CLRS 493 and 494 Clinical Education IV and V* (24 hours/week)	5	5		
CLRS 498 Senior Project	2	-		
PHIL 213 Ethics and Health Care Electives	3	-		
	<hr/>	<hr/>	<hr/>	<hr/>
	15	16		

Total credits **130**

* "C" is lowest passing grade.

⁺ Elective credits must include a minimum of one credit in visual or performing arts.

Courses in clinical radiation sciences (CLRS)

CLRS 101 Introduction to Clinical Radiation Sciences

Semester course; 1 lecture hour. 1 credit. Open to students on the Academic Campus who are interested in clinical radiation sciences as a career. Presentation and

discussion of the art and science of medical imaging. The use of ionizing radiation will be explored from its discovery to its current application in therapy and medical diagnosis. Radiography, nuclear medicine and radiation therapy will be discussed in terms of career specialties within the profession.

CLRS 200 Medical Terminology for the Radiation Sciences

Semester course; 2 tutorial laboratory hours. 1 credit. Assists the student in building a medical vocabulary utilizing suffixes, prefixes and word roots, along with terms appropriate to body systems and organs. Emphasis is on understanding basic medical terms and gaining experience in applying that knowledge.

CLRS 201 Radiographic Imaging and Exposure I

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 205. Introduction to radiographic equipment and the imaging process. Covers topics including equipment operation and manipulating radiation exposure to produce quality radiographs. Presents information that prepares students for clinical practice.

CLRZ 201L Radiographic Imaging and Exposure I Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 205 and CLRS 208. Pre- or corequisite: CLRS 201. Designed to introduce students to the fundamentals of radiographic image production. Requires performance of laboratory exercises to become familiar with equipment operation and manipulate radiation exposure variables to produce quality images.

CLRS 203-204 Pathophysiology I and II

Continuous course; 3-3 lecture hours. 3-3 credits. Prerequisites: BIOL 205 and PHIS 206. Presentation of the principles of disease and an introduction to various conditions of illness involving body systems.

CLRS 205 Exploring Radiation Sciences

Semester course; 1 lecture hour. 1 credit. A general overview of the wide variety of imaging and treatment modalities in radiation sciences will be presented. Emphasis will be on understanding how these modalities are utilized in today's complex health care environment, as well as the role of the technologist/therapist.

CLRS 206 Cross-sectional Anatomy

Semester course; 4 tutorial laboratory hours. 2 credits. Prerequisites: BIOL 205, PHIZ 206L, or permission of instructor. A general overview of cross-sectional anatomy at representative levels will be presented. Emphasis will be on identifying major muscles, organs, bones and vessels on diagrams, photographs and images.

CLRS 208 Foundations of Patient Care

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 200 or equivalent. Legal, ethical and technical foundations of patient care will be explored with emphasis on the application of these principles to common radiologic situations.

CLRS 211 Radiographic Procedures I

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: BIOL 205, PHIS 206 and CLRS 208. Combines the study of anatomy and physiology and positioning for diagnostic radiographic examinations of the upper extremity, thorax, abdomen, lower extremity, spine, pelvis and urinary system. Requires demonstration of competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 212 Radiographic Procedures II

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: CLRS 211. Continuation of CLRS 211 with emphasis on anatomy and physiology and positioning for diagnostic radiographic examinations of routine contrast studies and basic and advanced headwork. Requires students to demonstrate competence in radiographic procedures, including positioning of simulated patients, manipulation of radiographic equipment and evaluation of radiographs.

CLRS 232 Radiation Safety

Semester course; 2 lecture hours. 2 credits. Prerequisite: PHYS 101. Provides an overview of radiation protection as it applies to the radiation sciences. Emphasizes radiation sources, detection and regulations. Discusses radiation protection responsibilities of the radiologic technologist for patients, personnel and public.

CLRS 294 Introduction to Clinical Education I

Semester course; 60 clinical hours. 1 credit. Prerequisite: CLRS 208. Introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Introduces students to the clinical process and equipment, and provides practical experience in routine, basic procedures.

CLRS 295 Introduction to Clinical Education II

Semester course; 128 clinical hours. 2 credits. Prerequisites: CLRS 201, 211, 232 and 294. Continued introduction to clinical experience supervised by clinical faculty and affiliate facility staff. Provides additional practical experience in routine, basic procedures.

CLRS 303 Orientation to Nuclear Medicine

Semester course; 1 lecture and 2 clinical hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232. Designed to acquaint the student with the field of nuclear medicine in general and the Program in Nuclear Medicine Technology in particular. It also provides an introduction to clinical practice.

CLRS 305 Orientation to Radiation Therapy

Semester course; 1 lecture 2 laboratory hours. 2 credits. Prerequisites: CLRS 208 and CLRS 232. Introduction to the clinical process, equipment and history of radiation therapy. Information will be presented that prepares the student to begin clinical practice. Clinical rotations and lab exercises are designed to expose the student to various aspects of radiation therapy.

CLRS 309 Oncologic Patient Care

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 208. Covers the basic concepts of patient care specific to radiation therapy, including consideration of physical and psychological conditions. Patient interactions, patient examinations, asepsis, local and systemic reactions, nutrition and medications are discussed. Factors influencing patient health during and following a course of radiation will be identified.

CLRS 312 Radiographic Procedures III

Semester course; 1 lecture hour. 1 credit. Prerequisite: CLRS 212. Continuation of CLRS 211 and 212 to cover additional positions added to routine examinations as well as routine special studies. Discusses strategies for performing pediatric, trauma and operating room studies.

CLRS 314 Pathology and Treatment Principles I

Semester course; 4 lecture hours. 4 credits. Prerequisite: CLRS 309. Presents the fundamentals of the disease processes for cancer of the following: skin, thorax, genitourinary, gynecological, head and neck, central nervous system and breast. The malignant condition,

etiology and epidemiology, patient workup, and methods of treatment are discussed. Attention to patient prognosis, treatment results and the effects of combined therapies.

CLRS 317 Nuclear Medicine Procedures I

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 303. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 318 Nuclear Medicine Procedures II

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 317. Corequisite: CLRS 322. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 319 Nuclear Medicine Procedures III

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 318 and 322. Presents the techniques employed in the performance of routine nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup and common findings.

CLRS 320 Radiographic Imaging and Exposure II

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 201. Radiographic imaging provides in-depth exploration of sensitometry, patient variables and pathology, and problem solving to produce optimal quality images. Compares principles of digital imaging to film-screen imaging.

CLRZ 320L Radiographic Imaging and Exposure II Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 201. Pre- or corequisite: CLRS 320. Requires students to perform laboratory exercises to manipulate a variety of variables and analyze their effect on the radiographic image. Focuses on developing problem-solving skills to produce optimal quality in images. Applies exposure factors to digital imaging for comparison to film-screen imaging.

CLRS 321 Nuclear Medicine Instrumentation and Computer Techniques I

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 303. Corequisite: CLRS 317. Pre- or corequisite: CMSC 128. Presentation of the operating principles of standard nuclear medicine imaging instrumentation systems with their practical applications. Topics include: Planar, SPECT and Positron Imaging devices and their associated components.

CLRS 322 Nuclear Medicine Instrumentation and Computer Techniques II

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 321 and CLRS 317. Pre- or corequisite: CMSC 128. Corequisite: CLRS 318. Combines the principles of nuclear medicine instrumentation with practical operation of the equipment. Instruments presented: survey meters, dose calibration, counting devices and image processing computers.

CLRS 323 Radiation Therapy, Techniques and Applications

Semester course; 4 lecture hours. 4 credits. Presents the basic concepts of dosimetry and treatment planning. Various external beam techniques and applications, depth dose data and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement and verification also are included.

CLRZ 328L Nuclear Medicine Instrumentation and Image Processing Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 317 and 321. Corequisites: CLRS 318 and 322. Presentation of the applications and techniques employed in the fundamentals of nuclear medicine detection instruments and hands-on processing of various nuclear medicine imaging procedures. Topics include operation of the single and multiple channel analyzer, spectrometers, uptake probe and well counter, GM survey meter and the dose calibrator. Image processing will be performed with nuclear medicine cardiac, renal, gastric emptying and tumor images varying the display parameters and reconstruction filters.

CLRS 331 Radiographic Imaging Equipment

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 320. Presents the principles and operation of general and specialized X-ray equipment. Emphasizes the equipment necessary to perform radiographic, fluoroscopic and tomographic examinations.

CLRS 332 Radiographic Pathology

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 204 and CLRS 393, or permission of instructor. Provides introduction to the study of radiographic pathology through reading and observation of film interpretation. Emphasizes recognition of common disease processes as demonstrated radiographically and, via advanced imaging modalities; where appropriate, understanding how to vary positioning and techniques to produce optimally diagnostic images; and the role of different imaging modalities in the evaluation of disease.

CLRS 341 Radiation Physics

Semester course; 2 lecture hours. 2 credits. Prerequisite: PHYS 101. Discusses fundamentals of the atom, electricity and magnetism. Emphasizes the production of X- and gamma rays; and the interaction of radiation with matter.

CLRS 342 Physics for Radiation Therapy

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 323 and CLRS 341. Includes a discussion of the properties of electromagnetic and particulate radiation. Details of production, interactions, treatment units, measurement of radiation, radioactivity and brachytherapy are presented.

CLRS 344 Physics for Nuclear Medicine

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 341. Topics in physics relevant to nuclear medicine technology will be presented. Topics include nuclear decay, nuclear interactions, production of radionuclides, gamma-ray spectroscopy, theory of nuclear medicine instrumentation, image processing and topographic reconstruction.

CLRS 351 Quality Management in Radiography

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 320 and CLRZ 320L, or permission of instructor. Designed to investigate quality control measures in radiology. Emphasizes monitoring of the imaging

system components that may affect radiographic quality through improper functioning.

CLRZ 351L Quality Management in Radiography Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 320 and CLRZ 320L, or permission of instructor. Pre- or corequisite: CLRS 351. Provides students an opportunity to perform various quality control checks on the film processor and imaging equipment commonly used in diagnostic radiography through laboratory exercises.

CLRS 390 Research Methods in the Radiation Sciences

Semester course; 2 lecture hours. 2 credits. Prerequisite: ENGL 200. Pre- or corequisite: STAT 210. The fundamentals of the research process will be presented for analysis and discussion. Elements of research appropriate to the radiation sciences will be reviewed. Emphasis will be on the ability to critically review research studies along with the selection and design of a research project.

CLRS 393-394 Clinical Education I and II

Continuous course; variable clinical hours. 3-5 credits. Prerequisites: CLRS 208, CLRS 232 and CLRS 201, or CLRS 303 or CLRS 305. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain practical experience in routine, basic procedures and observe more advanced procedures.

CLRS 395 Clinical Education III

Semester course; variable clinical hours. 5-6 credits. Prerequisite: CLRS 394. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine as well as advanced procedures.

CLRS 398 Introduction to Research

Semester course; 1 credit. Prerequisite: CLRS 390. Provides students the opportunity to explore and investigate a topic of special interest in their area of concentration under the supervision of a faculty adviser. Emphasizes the application of research concepts to writing a research project proposal.

CLRS 403 Advanced Patient Care for the Imaging Professional

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 208 Foundations of Patient Care or permission of instructor. Explores advanced patient care techniques and age-specific considerations in the radiation sciences. Emphasizes the application of advanced patient care principles.

CLRZ 403L Advanced Patient Care for the Imaging Professional

Semester course; 2 laboratory hours. 1 credit. Prerequisite: CLRS 208 Foundations of Patient Care or permission of instructor. Can be taken concurrently with or subsequent to CLRS 403. This course provides simulated experience in performing advanced patient care techniques related to the radiation sciences. Topics include cardiac rhythm interpretation, advanced cardiac life support, urinary catheterization, tracheostomy care, basic laboratory skills, basic respiratory therapy skills, pulse oximetry, IV therapy and pharmacology, and conscious sedation.

CLRS 405 Principles of Mammography

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 201 and CLRS 320, or permission of instructor. Presentations and discussions designed to provide an

overview of the principles of mammography. Topics include history, anatomy, physiology and pathology of the breast; exposure techniques; and quality control. Focuses on routine and specialized positioning of the breast and image evaluation to prepare students for practical experience in mammography.

CLRZ 405L Principles of Mammography Lab

Semester course; 2 laboratory hours. 1 credit. Prerequisites: CLRS 201 and CLRS 320, or permission of instructor. Can be taken concurrently with or subsequently to CLRS 405. Provides simulated experience in performing positioning of the breast. Students will be expected to demonstrate competence in positioning the breast phantom for a variety of routine and specialized projections. In addition, quality control procedures specific to mammography will be performed.

CLRS 406 Introduction to MRI

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 341 or permission of instructor. An introduction to the elements of magnetic resonance imaging, including instrumentation, physical principles, image production and quality, MR safety, magnetic resonance angiography and imaging applications.

CLRS 408 Introduction to Computed Tomography (CT)

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 206 and 341 or permission of instructor. This course provides the student with an overview of computed tomography. Topics include computed tomography physical principles, data acquisition/image reconstruction, equipment and terminology. Imaging parameters, patient care issues (i.e., preparation, monitoring) quality control and clinical application in medical imaging also will be introduced. Lastly, emerging technologies/techniques and special studies involving computed tomography will be discussed.

CLRS 410 Routine Computed Tomography Procedures

Semester course; 1 lecture hour. 1 credit. Prerequisites: CLRS 206 and 408, or permission of instructor. Presents routine procedures used in computed tomography imaging. Reviews examinations and protocols involving the head, chest, abdomen and extremities.

CLRS 412 Radiation Therapy Treatment Planning

Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. Prerequisite: CLRS 323 and 342 or permission of instructor. An introduction to routine 2-D and 3-D treatment planning for the most common forms of cancer including prostate, rectum, lung, breast and head and neck regions. Simulated lab training using the ADAC Pinnacle treatment planning system will be included. Emphasis will be on the rationale and process of treatment planning for patients undergoing radiation therapy.

CLRS 415 Pathology and Treatment Principles II

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 309 and 314. A continuation of CLRS 314. Presents the fundamentals of the disease process for the following cancers: gastrointestinal, lymphomas and hematological malignancies, bone tumors, childhood tumors, and eye and orbital tumors. Discusses patient workup and prognosis, treatment results, and the effects of combined therapies. Radiotherapeutic emergencies, palliation and combined modality treatment also will be discussed.

CLRS 417 Nuclear Medicine Procedures IV

Semester course; 3 lecture hours. 3 credits. Prerequisite: CLRS 319. Presents the techniques employed in the performance of advanced nuclear medicine procedures. Topics include anatomy and physiology, pathology, patient preparation, contraindications, radiopharmaceuticals, dose route of administration, biodistribution, imaging protocols, equipment setup, and common findings.

CLRS 430 Radiobiology

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 232 or permission of instructor. Presents the principles of biologic responses to radiation, including factors influencing radiation effects, tissue sensitivity and tolerance. Clinical application in radiography, nuclear medicine and radiation therapy are reviewed.

CLRS 453 Quality Management in Nuclear Medicine

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CLRS 322. Explores the quality assurance parameters in a nuclear medicine department. Emphasis is given to the performance of tests to assess survey meters, spectrometers, dose calibrators, gamma cameras and SPECT imaging systems. Additionally, quality assurance is discussed in terms of radiopharmaceuticals, radioimmunoassay laboratories and patient management.

CLRS 455 Quality Management in Radiation Therapy

Semester course; 2 lecture hours. 2 credits. Prerequisite: CLRS 323. Designed to provide the student with knowledge of the concepts and principles of quality assurance. The performance of various tests including purpose, sources of malfunction and action guidelines will be discussed.

CLRS 461 Radiopharmaceutical: Preparation and Quality Control

Semester course; 2 lecture hours. 2 credits. Prerequisites: CLRS 303 and two semesters of general chemistry. Provides the technical knowledge necessary for the preparation and quality control of radiopharmaceutical agents for in-vivo and in-vitro nuclear medicine studies.

CLRS 471-472 Radiology Imaging Procedures for Radiologist Assistants I and II

Continuous course; 3-3 lecture hours. 3-3 credits. Prerequisites: CLRS 402 and 403, and CLRZ 403L or permission of instructor. Establishes a framework for radiologist assistants' participation in patient examinations for diagnostic inspection and/or therapeutic treatment. Emphasizes establishment of fundamental radiology procedures that follow American College of Radiology Standards for principles and practices producing high-quality radiographic care. Includes basic radiology procedures in genitourinary, gastrointestinal, pediatric, thoracic, musculoskeletal selections and vascular/interventional specialties. Addresses legal, ethical and professional issues concerning radiologist assistants.

CLRS 475 Medical Imaging Fundamentals for Radiologist Assistants

Semester course; 3 lecture hours. 3 credits. Prerequisites: CLRS 402 and 403, and CLRZ 403L or permission of instructor. Promotes an understanding of methods and techniques for the systematic observation of static and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies and pathological conditions. Includes protocols for drafting

memoranda of initial observations based on image assessment.

CLRS 480 Applied Radiology Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: Departmental approval. Relates basic concepts in management to the radiologic environment and explores the relationship between the radiologic facility and the health care system.

CLRS 488 Senior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: Senior standing in department. Designed to allow students to integrate the various individual courses into a single perspective as it relates to the radiation sciences. Addresses timely professional issues, including the need for lifelong learning and participation in professional organizations, as well as preparing for certification and future employment.

CLRS 492 Directed Study: Radiation Sciences

Semester course; 1-4 credits. Maximum of six credits can apply to graduation requirements. Prerequisite: Permission of department chair. Provides the opportunity for individualized research projects, tutorial studies, special clinical work or other topics not available in formal course work.

CLRS 493 Clinical Education IV

Semester course; variable clinical hours. 1-7 credits. Prerequisite: CLRS 395. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 494 Clinical Education V

Semester course; variable clinical hours. 1-7 credits. Prerequisite: CLRS 493. Clinical experience supervised by clinical faculty and affiliate facility staff. Students gain additional practical experience in routine, basic and advanced procedures.

CLRS 498 Senior Project

Semester course; 2 credits. Prerequisites: CLRS 390, 398 and senior standing in department. Provides students the opportunity to investigate a topic of special interest in their area of concentration. Emphasizes the application of research concepts in the design, implementation and presentation of a project under the supervision of a faculty adviser.

Course in health care management (HCMG)**HCMG 300 Health Care Organization and Services**

Semester course; 3 lecture hours. 3 credits. Examines the structure and function of the U.S. health services delivery system. Examines the role and responsibilities of health care professions and occupations, technology and financing arrangements in the delivery system.

Department of Rehabilitation Counseling**Christine A. Reid**

Associate Professor and Department Chair (2002)
B.A. 1983 Northern Illinois University
M.A. 1985 Northern Illinois University
Ph.D. 1983 Illinois Institute of Technology

Undergraduate studies in rehabilitation studies

From 1974 to 1994, the department offered a bachelor of science degree program in rehabilitation services. With the development of national certification groups and licensure laws in most states, professional counseling has become a predominantly graduate-level profession. The department no longer offers the baccalaureate degree in rehabilitation services, but continues to offer the undergraduate courses in rehabilitation services in interdisciplinary cooperation with other majors.

Pathways

Pathways, initiated in the spring of 1996, is a unique interdisciplinary program concentration designed for students from a wide variety of academic departments who are interested in pursuing alcohol and drug rehabilitation studies. A sequence of recommended courses is offered to students who are majoring in psychology, criminal justice, social work, pharmacy, nursing, rehabilitation counseling, and other academic and professional disciplines. The sequence of course work depends upon the level of intensity sought by the student, and it may range from only a single introductory course to a complete specialization. Pathways enables students to select a curricular path that matches their substance abuse rehabilitation interest regardless of their discipline. The program is available to undergraduates and is arranged in collaboration with the student's major adviser and/or the director of the rehabilitation substance abuse counselor education concentration.

Courses in rehabilitation services (RHAB)

Courses in rehabilitation services provide a basic understanding of people with mental, physical, cognitive and sensory disabilities and how to help them lead more productive lives. The courses are not only relevant to future graduate study in the profession of rehabilitation counseling, but to a number of other rehabilitation-related professions such as clinical and counseling psychology, social work, special education, corrections, therapeutic recreation, occupational therapy, physical therapy and so forth.

As resources permit, courses are offered in substance abuse rehabilitation at the

undergraduate level to prepare the student to meet eligibility requirements for state and national substance abuse counselor certification, but also are available as elective credit, which may be applied toward fulfilling degree requirements or meeting continuing education needs.

One honors course is included in the university honors program: RHAB 202 General Substance Abuse Studies. Interested students should contact the University Honors Program office for further information.

RHAB 201 Introduction to Rehabilitation Services

Semester course; 3 lecture hours. 3 credits. This course has been designed to expose the student to the history and development of the rehabilitation movement. Topics explored include basic concepts and philosophies of rehabilitation, psychological and vocational adjustments of the disabled, and an examination of selected rehabilitation methods.

RHAB 202 General Substance Abuse Studies

Semester course; 3 lecture hours. 3 credits. This course is designed to help the student develop an appreciation of society's attitude about the use of drugs and alcohol, and each individual's responsibility in decisions about the use of drugs. Discussion is offered on specific characteristics of drugs, how addiction occurs and role of rehabilitation after addiction.

RHAB 321 Introduction to Substance Abuse

Semester course; 3 lecture hours. 3 credits. Prerequisite: RHAB 202. Introduction to substance abuse as a progressive family disease with consideration of basic contributing factors (physiological, psychological and sociocultural builds on foundation established in RHAB 202); exposure to multidisciplinary rehabilitative approaches to arresting the disease, as well as some knowledge of intervention; brief mention of the highlights of the continuum of care available in the recovery process.

RHAB 452 Crisis Intervention with the Substance Abuser

Semester course; 3 lecture hours. 3 credits. Prerequisites: RHAB 321, 322, 523 or permission of instructor. Focus on the application of concepts discussed in theory in the recovery process course; sharing of difficulties and successes with crisis intervention by individuals already in the field; provision of new and more refined techniques under the direction of experts demonstrating their applicability.

RHAB 495 Practicum in Rehabilitation

Semester course; 3 credits. Prerequisite: Permission of instructor. Designed to provide opportunities for observation and participation in rehabilitation and related settings. Experiences are systematically related to theoretical concepts.

School of the Arts

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B.A. 1976 Averett College
M.Arch. 1980 Virginia Polytechnic Institute and
State University

Ted Potter

Director, Anderson Gallery and Associate Professor
(1997)
B.F.A. Baker University
M.F.A. 1961 California College of Arts and Crafts

Degree programs

Baccalaureate programs within the School of the Arts prepare creative people for careers in the visual and performing arts. The school emphasizes the development of individual competencies in the arts through the following departments:

Art Education
Art History
Communication Arts and Design
Crafts
Dance and Choreography
Fashion Design and Merchandising
Interior Design
Music
Painting and Printmaking
Photography and Film
Sculpture
Theatre

The School of the Arts offers graduate programs culminating in the Master of Fine Arts, Master of Art Education, Master of Arts, and Master of Music with major and minor concentrations in various departments. Detailed information on these programs appears in the Graduate and Professional Programs Bulletin.

Transfer students

Departmental faculty committees determine placement in all upper-level courses after evaluating the student's record, performance, audition and/or creative work. The student should contact the appropriate department chair at the time of acceptance to arrange for this evaluation before actual enrollment.

Special charges

All full-time majors enrolled in the School of the Arts are charged a comprehensive fee each semester. The fee schedule is printed each semester in the Schedule of Classes. The money is prorated to the individual departments that determine the expenditures, resulting in a rebate to the students through materials, services and/or equipment, and may include models, field trips or special lectures. Students enrolled in any of the numerous courses which require an additional outlay for materials will be billed for those individual fees by the Student Accounting Department.

Internships and cooperative education

The School of the Arts encourages qualified students to enter into limited and carefully selected internship arrangements. To assist students, departments and programs are encouraged to identify, evaluate and select internship arrangements that will expand and complement the scope of the student's educational experience, and support the university's, the school's and the department's or program's mission.

Internship arrangements are coordinated by the individual department or program and are considered university-supported activities involving enrolled students and faculty. All participants in such arrangements are subject to all applicable university policies and procedures. These policies and procedures include, but are not limited to, conflict of interest, intellectual properties, faculty rights and responsibilities, and those policies and procedures outlined in the VCU Resource Guide.

While the School of the Arts encourages student internship arrangements, it disallows student internship arrangements when family members serve in a supervisory capacity. Should such an internship arrangement become an option, the approval of the

dean must be received prior to completing any final agreement.

The School of the Arts also participates in the Cooperative Education Program. Qualifying students can take part in this program through most departments. A full description of the program appears in the “Division of Student Affairs and Enrollment Services” chapter of this bulletin.

Academic requirements

All majors in the School of the Arts must earn a minimum GPA of 2.0 in their major concentration in order to meet the university requirements for graduation.

The department and the student’s adviser periodically evaluate the record of each student. If at any time during undergraduate studies the department faculty concludes a student is not demonstrating adequate progress in the area of concentration, the student will be advised to withdraw from that department.

Some degree programs stipulate minimum GPA requirements in the major concentration higher than 2.0 and other special reviews to determine satisfactory progress in their programs. Students are advised to refer to the individual department sections in this bulletin detailing prerequisites (i.e. portfolio reviews, juries, recitals, progress review, etc.) that govern admission to advance-level study.

Student participation in both credit and non-credit bearing department activities may be required. Students matriculating in School of the Arts degree programs are bound by the policies and procedures stipulated in this bulletin and in other current departmental student handbooks or policy documents of the school’s academic departments in which students are registered for courses.

General education requirements

The School of the Arts is committed to educating students about the role of the artist in a complex, ever-changing world. Graduates are prepared to become responsible, productive artist-citizens who will make meaningful contributions to their discipline and to society. The university-based professional school provides students with rich, varied educational experiences that will acquaint them with new ideas and with the

breadth of knowledge to successfully face the challenges and changes the future will bring. The appreciation for lifelong learning is inherent in the education of the artist.

The School of the Arts faculty has developed general education expectations in addition to required arts courses for students. Students have the opportunity to choose from a wide variety of courses or may focus within a specific area and develop a minor. These reflect the four university commitments and seven curricular elements amplified to reflect the baccalaureate degrees offered by the School of the Arts.

1. Communicating

Students should understand the basic construction of our language and be able to express themselves coherently in writing and through speech. They should understand the professional language of their discipline and be able to communicate this clearly.

- 1.1 All students will successfully complete university-level equivalency of ENGL 101 Writing and Rhetoric Workshop I and ENGL 200 Writing and Rhetoric Workshop II. This course work emphasizes reading and writing.
- 1.2 All students will complete at least two courses that emphasize writing and are designated WI (writing intensive).

1.2.1 At least one required course within the student’s major will have a writing emphasis that meets the “Writing Emphasis Guidelines” of the School of the Arts. Discipline-oriented writing intensive course work may include the preparation of research reports and term papers, written critical reviews, journals, and other vehicles that allow the student to form abstract concepts into written language. This work will be critiqued from both a technical and writing standpoint with the opportunity to be redone to meet the standards of written communication needed for the profession.

School of the Arts discipline-oriented courses that have a writing emphasis and designated WI (writing intensive) include:

- APPM 463 Vocal Pedagogy
- APPM 463 Piano Pedagogy
- APPM 463 Brass Pedagogy
- APPM 463 Woodwind Pedagogy
- APPM 463 Strings Pedagogy
- APPM 463 Guitar Pedagogy
- ARTE 311 Art Education: Curriculum and Instructional Procedures
- ARTE 401 Art Education: Elementary Materials and Practicum
- ARTE 402 Art Education: Secondary Materials and Practicum

- ARTH 455 Aesthetics and Modern Theories of Art
- ARTH 497 Directed Research Project
- CARD 239 Media Presentation
- CARD 412 Typographics III
- CARD 424 Visual Journalism in Illustration
- CRAF 482 Senior Seminar
- DANC 103-104 Survey of Dance History*
- DANC 313 Dance in World Cultures
- FASH 319 Contemporary Fashion
- IDES 251 History of Interior Environments
- IDES 252 History of Interior Environments
- IDES 431 ID Business Practices
- MHIS 220 World Music
- MHIS 324 Music History, Jazz
- MUED 290 Introduction to Music in General Education
- PAPR 490 Senior Seminar
- SCPT 491 Topics in Sculpture
- THEA 211-212 Introduction to Drama
- THEA 361-362 Directing

* Must be taken in sequence with DANC 313 to count as writing intensive.

1.2.2 Any additional course identified by the WI designation will satisfy the requirement for a second writing intensive course. (Refer to the current Schedule of Classes).

1.3 All students will participate in oral communication experiences that will help them develop the skills to speak effectively. Oral communication experience can be achieved by students preparing and presenting verbally to an audience. This experience may include presentation and defense of work in a critique or jury forum, presentation of prepared work in a class setting, and other vehicles that provide the student opportunities to develop skills that support the ability to speak with a level of ease in front of a group of people.

Within the School of the Arts, the following courses satisfy the requirement for oral communication experience:

- APPM 299 Master Class
- ARTE 311 Art Education: Curriculum and Instructional Procedures
- ARTE 401 Art Education: Elementary Materials and Practicum
- ARTE 402 Art Education: Secondary Materials and Practicum
- Art history upper division period courses
- CARD 212 Communication Design I: Form and Communication
- CARD 239 Media Presentation
- CARD 423 Editorial Illustration II
- Crafts: all crafts studio courses
- DANC 303-304 Choreography/Performance
- FASH 205-206 Fashion Drawing I
- Interior Design: all interior design studio courses
- IDES 431 ID Business Practices
- PAPR 305 Painting, Intermediate

Sculpture: all sculpture studio courses
 SPCH 121 Effective Speech
 THEA 113-114 Acting I
 THEA 201-202 Stage Voice and Speech

2. Ethics

Students should understand and appreciate a system of values upon which rests their professional and personal conduct. They should be able to examine fundamental moral beliefs and form rational ethical arguments, judgments and choices.

2.1 **Option 1:** The study of ethics permeates courses within each major in the School of the Arts. Additionally, students will study units in selected courses that provide a basis upon which to make ethical professional choices.

School of the Arts courses that satisfy the ethics requirement:

ARTE 310 Foundations of Art Education
 ARTH/WMNS 457 Women, Art and Society
 ARTH 469 Studies in Museum Methods
 ARTH 493 Museum Internship
 CARD 330/IDES 330/FASH 330 The Business of Design
 CARD 356 Studio Management
 CRAF 482 Senior Seminar
 IDES 431 ID Business Practices
 MUED 290 Introduction to Music in General Education
 MUED 391 Processes of Music Education

Option 2: Students may complete designated ethics courses offered outside of the school.

The following courses can be taken to fulfill the ethics requirement:

PHIL 211 History of Ethics
 PHIL 212 Ethics and Applications
 PHIL 327 Ethical Theory
 POLI 341 History of Political Thought
 RELS 340/INTL 341 Global Ethics and the World's Religions

With the approval of the student's adviser, a course not listed that fulfills the spirit of this requirement may be substituted.

3. Quantity and form

Students should be able to effectively apply codified information to resolve questions of quantity and form, especially as related to their discipline.

3.1 Within the major, students will be provided with information necessary for them to solve the questions relating to "Quantity and Form" that are specific to their field of study.

3.2 **Option 1:** Students may complete courses that will further develop logical thinking and the ability to understand quantitative processes.

Recommended courses that fulfill this requirement are:

MATH 131 Introduction to Contemporary Mathematics

STAT 208 Statistical Thinking
 Other mathematics or statistics credit courses may be used to fulfill this requirement.

With approval of the student's adviser, a course not listed that fulfills the spirit of this requirement may be substituted.

Option 2: Competency in "Quantity and Form" may be recognized based on a student's secondary record or standardized test results prior to enrolling at the university.

Secondary-level course work that fulfills this requirement includes the completion of algebra II or geometry with a minimum grade of "B," or

Standardized test scores that fulfill this requirement are an SAT score of 550 or higher or the equivalent score on a comparable standardized test.

4. Science and technology

Students should understand the importance that science and technology play in modern society and, in particular detail, those applications that have direct impact on their field of study.

4.1 Within each major, students will be taught about scientific data that impacts their field of study and how to analyze, understand and apply this information.

4.2 All students will be required to complete one course in natural science having a laboratory component.

Recommended courses that satisfy the "Science and Technology" requirement include:
 BIOL 101, BIOZ 101L Biological Concepts and Laboratory
 BIOL 102, BIOZ 102L Science of Heredity and Laboratory
 CHEM 110 and CHEZ 110L Chemistry and Society and Laboratory
 DANC 317, 318 Anatomy for the Dancer and Dance Science
 ENVV/BIOZ 103, ENVZ/BIOZ 103L Environmental Science and Laboratory
 GEOG 203, GEOZ 203L Physical Geography and Laboratory
 GEOG 204, GEOZ 204L Physical Geography and Laboratory
 PHYS 101, PHYZ 101L Foundations of Physics and Laboratory
 PHYS 107 Wonders of Technology
 PHYS 291 Topics in Physical Science

Other biology, chemistry and physics courses may be used to fulfill this requirement.

With the approval of the student's adviser, a course not listed that fulfills the spirit of this requirement may be substituted.

5. Interdependence

Students should be aware of the similarities and differences that exist among the communities of the world and develop an understanding of and an

appreciation for diverse cultures within our country and beyond its borders.

5.1 Within the School of the Arts, curricula concepts related to interdependence and its impact on specific disciplines are presented in many courses.

Courses offered within the School of the Arts that satisfy this requirement are:

ARTH 103,104 Survey of Western Art, and one course with non-Western focus:
 ARTH 145, 146 Survey of Asian Art
 ARTH 207 Introduction to Non-Western Art
 ARTH 335 Pre-Columbian Art and Architecture
 ARTH/AFAM 342 African-American Art
 ARTH/AFAM 350 African and Oceanic Art
 ARTH 355 Symbolic Expression in the Visual Arts
 ARTH/AFAM 358 African Art and Architecture
 ARTH 449 Studies in Asian Art
 DANC 313 Dance in World Cultures
 MHIS 120 Introduction to Musical Styles
 MHIS 220 World Music
 MHIS 321, 322, 323, 324 Music History
 THEA 307-308 History of the Theatre

5.2 Elective courses offered outside of the school that support understanding of interdependence include:

AFAM/HIST 105, 106 Survey of African History
 AFAM/ANTH/INTL 200 Introduction to African Societies
 AFAM 204 Africa in Transition
 AFAM/GEOG/INTL 333 Geography of Africa
 AFAM/POLI/INTL 356 Government and Politics of Africa
 AFAM/POLI/INTL 357 Politics of Southern Africa
 AFAM/HIST 387 History of West Africa
 AFAM/HIST 389 History of Southern Africa
 ANTH/INTL 103 Introduction to Anthropology
 ANTH/BIOL 301 Human Evolution
 ANTH/SOCY/WMNS 304 The Family
 ANTH/INTL 305 Comparative Perspectives on Cultures and Societies
 ANTH/INTL 350 Rethinking a Continent: Europe
 ANTH/RELS/INTL 425 Religion, Magic and Witchcraft
 EUCU 307 Aspects of German Culture
 FREN 320 and 321 French Civilization and Culture I and II
 FRLG/INTL 345/URSP 350 Culture and Urbanism in Great Cities of the World
 GEOG 307, 308/INTL 308, 309 World Regions
 GRMN 320 and 321 German Civilization I and II
 HIST 109, 110 Survey of Latin American History
 HIST 315, 316 History of France
 HIST 317, 318 History of Germany
 HIST 319, 320 History of England

HIST 321, 322 History of Russia
 HIST 323 History of Spain and Portugal
 HIST 328 Modern Middle East
 HIST 378 History of Central America
 HIST 384 Latin America and World Affairs
 HIST 385 History of Mexico
 HIST 386 History of Brazil
 PHIL 103 Ancient Greek and Medieval Western Philosophy
 PHIL 104 Modern Western Philosophy
 PHIL/RELS 408 Indian Tradition
 PHIL/RELS/INTL 410 The Chinese Tradition in Philosophy
 PHIL/RELS/INTL 412 Zen Buddhism
 POLI/INTL 351 Governments and Politics of the Middle East
 POLI/INTL 353 Latin American Governments and Politics
 POLI/INTL 355 Asian Governments and Politics
 POLI/INTL 452 Seminar in the Politics of Developing Areas
 RELS 304 Introduction to Judaism
 RELS/INTL 311, 312 Religions of the World
 RELS 320 Taoism
 RELS 407 Modern Jewish Thought
 SPAN 320 Civilization of Spain I
 SPAN 321 Latin American Civilization I

Foreign language literature in English translation or in the original language also satisfies the interdependence requirement.

With the approval of the student's adviser, a course not listed that fulfills the spirit of this requirement may be substituted.

6. Visual and performing arts

Students should have appreciation for the contribution of the visual and performing arts to the enhancement of the quality of life. Each student who graduates from the School of the Arts will have achieved proficiency in at least one discipline within the School of the Arts.

7. Humanities and social sciences

Students should have experience with courses that broaden the mind and expand consciousness through the study of social sciences and humanities.

7.1 Students will successfully complete at least three credits of course work in the social sciences and at least three credits in the humanities, plus successfully complete a minimum of six credits of course work in art history, history of dance, music history, theatre history or other courses related to the history of arts in the world.

7.1.1 Social sciences

AFAM/SOCY 104 Sociology of Racism
 AFAM/ANTH/INTL 200 Introduction to African Societies
 AFAM/POLI 302 Politics of the Civil Rights Movement
 ANTH/INTL 103 Introduction to Anthropology
 ANTH/GEOG 312 History of Human Settlement

ANTH/ENGL 386 Introduction to Folklore
 History designation in the current Schedule of Classes
 POLI 103 U.S. Government
 POLI/INTL 105 International Relations
 POLI 201 Introduction to Politics
 POLI 303 Public Opinion, Polling and the Media
 POLI 310 Public Policy
 POLI/ENVS 311 Politics of the Environment
 POLI/AFAM/WMNS 318 Politics of Race, Class and Gender
 POLI 321 City Politics
 POLI 344 Contemporary Political Theory
 POLI/INTL 352 European Governments and Politics
 POLI/INTL 353 Latin American Governments and Politics
 POLI/INTL 354 Russian and Post-Soviet Politics
 POLI/INTL 355 Asian Governments and Politics
 POLI/AFAM/INTL 356 Government and Politics of Africa
 POLI/INTL 358 Concepts of Comparative Government
 POLI/INTL 361 Issues in World Politics
 PSYC 101 Introduction to Psychology
 SOCS 291 Issues in Social Science
 SOCS 340 Human Sexuality
 SOCS 350 The Construction of Culture
 SOCY 101 General Sociology
 SOCY 302 Contemporary Social Problems
 SOCY 340 Self and Society
 URSP 304 Urban Social Systems
 URSP 315 The Evolution of American Cities
 URSP 316 Urban Life in Modern America
 URSP/GEOG/INTL 340 World Cities Outside of North America
 WMNS/PSYC 335 Psychology of Women

7.1.2a Humanities

AFAM/HIST 105, 106 Survey of African History
 ECON 101/INTL 102 Introduction to Political Economy
 ECON 203 Introduction to Economics
 EDUS 200 Education in American Society
 EDUS 301 Human Development and Learning
 EDUS/PSYC 305 Educational Psychology
 GEOG 102 Introduction to Human Geography
 GEOG 307, 308/INTL 308, 309 World Regions
 GEOG 551 Cultural Geography of Virginia
 PHIL 101 Introduction to Philosophy
 PHIL 103 Ancient Greek and Medieval Western Philosophy
 PHIL 104 Modern Western Philosophy
 PHIL 211 History of Ethics
 PHIL 212 Ethics and Applications
 PHIL 221 Critical Thinking
 POLI 341, 342 History of Political Thought
 RELS/INTL 311, 312 Religions of the World
 RELS 340/INTL 341 Global Ethics and the World's Religions

7.1.2b Humanities, history of arts in the world
 ARTF 105-106 Survey of World Art
 ARTH (all courses)
 CARD 252 History of Visual Communications I
 CARD 253 History of Visual Communications II
 DANC 313 Dance in World Cultures
 FASH 319 Contemporary Fashion
 IDES 251 History of Interior Environments
 IDES 252 History of Interior Environments
 MHIS 120 Introduction to Musical Styles
 MHIS 220 World Music
 MHIS 321, 322, 323, 324 Music History
 THEA 307-308 History of the Theatre
 THEA 309, 310 History of Costumes

With the approval of the student's adviser, a course not listed that fulfills the spirit of this requirement may be substituted.

School of the Arts recommended general education courses for non-School of the Arts majors entering fall 1997 and thereafter

The following courses will satisfy the "Visual and Performing Arts" general education requirement for non-art majors. Consult an adviser for assistance in selecting courses that will best fulfill degree requirements.

A. Basic level courses designed specifically for non-arts majors.

Art education

ARTE 121-122 The Individual in the Creative Process
 ARTE 301-302 Art for Elementary Teachers
 ARTE 408 Two-dimensional Art Experiences
 ARTE 409 Three-dimensional Art Experiences

Art foundation

ARTF 121-122 Introduction to Drawing

Communication arts and design

CARD 191 Studio Topics in Communication Arts and Design

Dance/choreography

DANC 171, 172 T'ai Chi
 DANC 183, 184 Introduction to Modern Dance Technique
 DANC 313 Dance in World Cultures

Interior design

IDES 103-104 Introductory Studio Course

Music

MHIS 105-106 Introduction to Writing Music
 MHIS 243 Music Appreciation
 MHIS/AFAM 250 Introduction to African-American Music

Painting and printmaking

PAPR 155, 156 Drawing and Painting, Basic

Sculpture

SCPT 209 Introduction to Sculpture

Theatre

THEA 107, 108 Introduction to Stage Performance

B. Basic level courses open to both arts and non-arts majors.**Art education**

ARTE 353 Art and Perceptual Communication

Art history

ARTH 103, 104 Survey of Western Art
 ARTH 145, 146 Survey of Asian Art
 ARTH 207 Introduction to Non-Western Art
 ARTH 270, 271 History of the Motion Picture

Crafts

CRAF 201-202 Metalsmithing
 CRAF 211-212 Jewelry
 CRAF 221 Woodworking Techniques
 CRAF 241 Ceramics: Handbuilding
 CRAF 242 Ceramics: Wheelthrowing
 CRAF 251, 252 Introduction to Glassworking
 CRAF 261, 262 Beginning Textiles

Dance/choreography

DANC 103-104 Survey of Dance History
 DANC 105-106 Improvisation
 DANC 111-112 Ballet Technique I
 DANC 114, 214, 314, 414 Summer Dance
 Workshop
 DANC/AFAM 121, 122 Tap Technique I
 DANC/AFAM 126, 127 African-Caribbean Dance I
 DANC 141, 142 Ballroom Dancing
 DANC 243 Dynamic Alignment
 DANC 291 Topics in Dance
 DANC 313 Dance in World Cultures

Fashion design and merchandising

FASH 290 Textiles for the Fashion Industry
 FASH 319 Contemporary Fashion

Music

APPM 300-level Private Instruction: Principal and
 Secondary Performing Mediums
 APPM 370 Large Ensembles (auditions required for
 some sections)
 APPM 390 Small Ensembles (auditions required for
 all sections)
 MHIS 120 Introduction to Musical Styles
 MHIS/AFAM 250 Introduction to African-
 American Music
 MHIS/AFAM 350/INTL 370 Studies in the Music
 of the African Continent and Diaspora

Theatre

THEA 103 Stagecraft
 THEA 104 Costume Construction
 THEA 211-212 Introduction to Drama
 THEA 221/THEZ 221L Introduction to Scene
 Design and Laboratory

THEA 229 Introduction to Lighting Design
 THEA/AFAM 303 Black Theatre

C. Advance level courses open to both arts and non-arts majors. Some require special permission/audition.**Dance/choreography**

DANC 221, 222 Tap Technique II
 DANC 319, 320 Video/Choreography Workshop
 DANC 343 Body Imagery

General information

Students who have matriculated in a professional curriculum receive enrollment preference for courses in their program. However, unless otherwise indicated, all courses are open to any student in the university.

Because of the sequence in which course work is arranged, only transfer students will be considered for mid-year admission. With the exception of art history classes, all courses must be taken in their numerical sequence unless approved by the chair of the department in which they are listed.

In many of the courses, a considerable amount of work is done outside the classroom. This work is done in addition to the work done in the scheduled classes students are required to attend. Departments within the school reserve the right to retain examples of student work for permanent collections. Before enrollment, students should contact the appropriate department chair for a more detailed curriculum outline than that which appears in this bulletin.

Undergraduate credit by examination

Recognizing that VCU enrolls students of varying backgrounds and experiences, the School of the Arts provides its students the opportunity to accelerate their education through "credit by examination." The conditions under which credit by examination may be given as well as the procedures are outlined in the "Admission to the University" chapter of this bulletin.

University Honors Program

The University Honors Program was established to attract gifted students and to provide them with a challenging opportunity to achieve their highest academic potential. This program is open to all qualified under-

graduate students. For a detailed description of qualifications and requirements see the "Admission to the University" chapter of this bulletin.

500-level courses

500-level courses are available only to upper division undergraduate students with the approval of the chair of the department in which the course is offered.

Courses in arts (ARTS)

Unless otherwise indicated, courses must be taken in numerical sequence.

ARTS 001 Open Studio Workshop

Semester course; hours to be arranged. No credit.

ARTS 190 Advanced Workshop, Drawing

Semester course; 1 lecture and 6 studio hours. 3 credits. Must be taken concurrently with ARTS 191 and 192. Special summer workshop in drawing for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 191 Advanced Workshop, Design

Semester course; 1 lecture and 9 studio hours. 4 credits. Must be taken concurrently with ARTS 190 and 192. Special summer workshop in design for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 192 Advanced Workshop, Art History

Semester course; 2 lecture hours. 2 credits. Must be taken concurrently with ARTS 190 and 191. Special summer workshop in art history for the freshman applicant whose work shows potential worthy of consideration for advanced placement in September. Students are admitted only by invitation of the dean of the School of the Arts.

ARTS 370, 371 Topics in Art

Semester courses; 3 lecture or 9 studio hours (or combinations thereof). 3, 3 credits. An in-depth study of a selected topic in art. See the Schedule of Classes for specific topics to be offered each semester.

ARTS 392 and 492 Independent Study

Semester courses; 3-18 studio hours. 1 to 6 credits. Prerequisites: Consent of department head and instructor. The student must be enrolled in a regularly scheduled 300-level studio course. Offered to School of the Arts majors only. This course will be limited to those few students who have demonstrated an unusual level of ability and intense commitment to a particular area.

ARTS 430 Guided Study Afield

1-9 credits. Prerequisite: Permission of instructor required. Designed to enhance the student's knowledge by providing first-hand experience with the most significant contribution of aesthetic import within the geographic areas traveled.

Art Foundation Program

Camden Whitehead

Assistant Dean for Admissions and Director of Art Foundation (1986)

B.A. 1976 Averett College

M.Arch. 1980 Virginia Polytechnic Institute and State University

The mission of the Art Foundation Program is to provide an intellectually rigorous, studio-based experience in the fundamental issues of art and design. The program seeks to develop in its students an enthusiasm for their work, an ability to reflect constructively upon their actions as individuals and a responsibility for their education in the arts. The Art Foundation Program seeks to focus a student's professional activities while encouraging connections between these activities and a larger forum of ideas and concepts, preparing them for a wide range of disciplines that inform and enrich the arts.

All beginning students in the visual arts and all transfer students in the visual arts, when necessary, must enroll in the Art Foundation Program. In certain cases after the review of admission portfolios, some students will be required to enroll in a series of preliminary classes to develop the skills and habits necessary to enter the required courses in the Art Foundation Program. Students enrolled in these preliminary classes may apply for enrollment in the Art Foundation Program after one or two semesters of preliminary work. Admission into these preliminary courses provides no guarantee of acceptance into the Art Foundation Program.

Completion of the Art Foundation Program is a prerequisite for entry into all departments and areas in the visual arts (Art Education, Crafts, Communication Arts and Design [which includes Communication Design, Illustration and Kinetic Imaging], Fashion Design, Interior Design, Painting and Printmaking, Photography and Film, and Sculpture and Extended Media). Art Foundation provides the basic concepts, skills and experience necessary to pursue advanced studio work in each department. Students accepted and placed into the Art Foundation Program do not achieve departmental affiliation until after the screening of portfolios during the spring semester of the freshman year. At that time the student can apply to the department of his or her choice. Department acceptance is competitive and

is based on individual student performance and competency in their chosen area.

Art foundation curriculum

Studios	credits	
	first semester	second semester
ARTF 151-152 Foundation Studio	4	4
ARTF 161 Figure Drawing I	1	-
ARTF 162 Perspective and Three-dimensional Drawing	-	1
ARTF 163 Two-dimensional Design Methods	1	-
ARTF 164 Color Research Laboratory	-	1
ARTF 100-level technical laboratory elective	1	1
General studies		
ARTH 102 Contemporary Issues in Art and Design	3	-
ARTH 104 Survey of Western Art	-	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
ENGL 200-level literature elective	-	3
Academic elective	3	3
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Courses in art foundation (ARTF)

ARTF 101-102 Conceptualization and Presentation

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar. A foundation course with the emphasis on conceptualization, sensing and knowing. This course includes studies in preconceptions, value systems, visual semantics, attitudes, criticism and analysis of visual phenomena. This course also is an introduction to the concepts of the third and fourth dimensions and the nature of materials.

ARTF 103-104 Design Fundamentals

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar. A foundation course with emphasis on systems and nonsystems of spatial order as well as color applications and theory.

ARTF 105-106 Survey of World Art

Continuous course; 4 lecture hours. 4-4 credits. Offered at VCU Qatar. A survey of the history and development of painting, sculpture, architecture and related visual arts of major world cultures, including European, American, Oriental, African, Islamic and pre-Columbian.

ARTF 107 Introduction to the Arts

Semester course; 1 lecture hour. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. An orientation course designed to provide a comprehensive understanding of the role of the visual arts within the university and as a significant contributing factor in the creation of a meaningful human environment.

ARTF 109-110 Drawing Fundamentals

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar.

A foundation course with the emphasis on traditional drawing, including perspective, anatomy and artistic judgment.

ARTF 111-112 Drawing Studio

Continuous course; 1 lecture and 3 studio hours. 2-2 credits. Offered at VCU Qatar. A foundation course with the emphasis on the formal and conceptual nature of drawing. This course is designed to challenge and develop the student's invention and imagination.

ARTF 121-122 Introduction to Drawing

Continuous course; 1 lecture and 3 studio hours. 2-2 credits. Not for art majors. An introduction to the fundamentals of freehand drawing with an emphasis on representational drawing skills, perception and traditional drawing materials. Does not fulfill Art Foundation Program core requirements.

ARTF 150 Pre-Art Foundation Studio

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning studio course emphasizing the fundamental issues of art and design, such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the Pre-Art Foundation year, this course stresses the development of values that will become a basis for students' actions as professional artists and designers. Introduces students to the values, habits, traditions and expectations of studio culture. Addresses the processes and methods involved in the identification, development and realization of ideas and concepts. Does not fulfill Art Foundation Program requirements.

ARTF 151-152 Foundation Studio

Continuous course. 6 studio and 2 lecture hours. 4-4 credits. For first-year students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on fundamental issues of art and design such as meaning, context, content and parameters, structure, materials, means of construction, form, space, and light. As the primary studio offering in the first year, these courses stress the development of values that will become the basis for student's actions as professional artists and designers. Introduces students to the values, habits, traditions and expectations of studio culture.

ARTF 160 Pre-Art Foundation Drawing

Semester course; 6 studio and 2 lecture hours. 4 credits. For students in the Pre-Art Foundation Program in the School of the Arts. Offered to Pre-Art Foundation designees only. A beginning drawing course offering intense exposure to the basic skills of figure and perspective drawing. Traditional drawing media, the fundamentals of anatomy and the fundamentals of linear perspective are covered. Does not fulfill Art Foundation Program requirements.

ARTF 161 Figure Drawing I

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on anatomical and figure drawings. Students work in black and white media. Students develop drawing skills as a means of observation and documentation.

ARTF 162 Perspective and Three-dimensional Line Drawing

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course

with emphasis on creating the illusion of three dimensions on a two-dimensional plane using black and white media and primarily line work. Introduces perspective and paraline drawing methods as a means of observation and documentation. Students become familiar with techniques and traditions that enable them to understand, articulate and communicate the characteristics of three-dimensional space.

ARTF 163 Two-dimensional Design Methods

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on two-dimensional content. Emphasizes critical and analytical skills, the creation and manipulation of visual systems, and the development of a fundamental design vocabulary that supports conceptual generation and development.

ARTF 164 Color Research Laboratory

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on color theory, phenomena, characteristics, classification and the physics of color.

ARTF 171 Digital Laboratory

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on the generation and manipulation of digital media that support conceptual development.

ARTF 172 Digital Photography

Semester course (5 weeks); 5 studio hours. 1 credit. Prerequisite: ARTF 171 Digital Lab. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on the generation, manipulation and printing of digital media.

ARTF 173 Three-dimensional Design Methods

Semester course (5 weeks); 5 studio hours. 1 credit. For beginning students in the School of the Arts. Offered to art majors only. A foundation course with emphasis on fundamental means of construction, materials exploration and structural investigations that support conceptual development.

ARTF 181 Figure Drawing II

Semester course (5 weeks); 5 studio hours. 1 credit. Prerequisite: ARTF 161 Figure Drawing I. For beginning students in the School of the Arts. Offered to art majors only. An advanced foundation course with emphasis on figure drawing. Students work in black and white, and in color media. Students develop drawing skills as a vehicle to document objects and experiences and as a tool for invention.

ARTF 182 Perspective and Three-dimensional Rendering

Semester course (5 weeks); 5 studio hours. 1 credit. Prerequisite: ARTF 162 Perspective and Three-dimensional Drawing. Offered to art majors only. A foundation course that emphasizes the introduction of light, shadow, shading and color into three-dimensional drawings. Introduces these drawing skills as a means of observation, documentation, analysis and invention.

ARTF 191 Topics in Foundation Studies

Semester course (5 weeks); variable hours. 1-4 credits. May not be repeated. Prerequisites: Permission of the program director and instructor. A seminar or studio on a selected issue, topic or skill in the field of foundation studies.

Department of Art Education

Charles F. Bleick

Associate Professor and Department Chair (1976)
B.A. California State University, Chico
M.A. California State University, Chico
Ph.D. 1979 University of North Texas

The Department of Art Education offers an undergraduate program that leads to a Bachelor of Fine Arts degree. The program gives the student the opportunity to specialize in art education while emphasizing a strong background in the arts to help the student develop artistic sensitivity, critical analysis, perception and interpretation of art forms. The program assists in developing expertise in the utilization of electronic media in an increasingly technological world.

The Art Education Program is an approved Teacher Preparation Program that complies with the professional standards of the Virginia Department of Education and the Southern Association of Colleges and Schools. It is further accredited by the National Council for Accreditation of Teacher Education and the National Association of Schools of Art and Design. All of these agencies assure the highest professional program standards.

Most art education students enter the teaching profession and teach art in either elementary, middle or high school. Others pursue further education to work as art consultants, art therapists, arts administrators, museum personnel, college teachers and in other art-related business positions. Graduates of the program are eligible for teacher licensure in pre-kindergarten through grade 12. Reciprocity agreements with many states greatly expand job opportunities throughout the country.

Admission

Any undergraduate student admitted to the School of the Arts and who has completed the Art Foundation Program (or the equivalent at another institution) is eligible to enter the program. Transfer students and students currently attending VCU must have a minimum GPA of 2.0 to enter the program; however, note the higher GPA requirement for admission to teacher preparation.

Admission to teacher preparation

All students in the program, upon completion of 60 credits of undergraduate course work and prior to completion of 90 hours, must be accepted for admission to the Art Teacher Preparation Program. To be accepted, a student must have a minimum GPA of 2.5. Admission to the Teacher Preparation Program is required for enrollment in practicum courses (ARTE 401 and 402).

Requirements

- 2.5 cumulative GPA or better.
- Completion of ARTE 310 and 311 with a combined GPA in those courses of 2.5 or better.
- Completion of six hours of English, three hours of math, four hours of laboratory science and eight hours of art history.
- Passing scores on Praxis I.
- No record of a felony conviction.

Student teaching

The B.F.A. in Art Education requires one full semester of student teaching. Applications for student teaching can be obtained in the Department of Art Education's office. Each student is placed in two different settings, one at the elementary level and one at the middle or high school level.

Requirements

- 2.5 cumulative GPA.
- 2.8 GPA in ARTE course work.
- Admission to the Art Teacher Preparation Program.
- Successful completion of all other required course work.
- Completed application and transcripts submitted by established deadlines.

Procedures

- Obtain application form from the Department of Art Education's office.
- Submit copies of transcripts and required statement to the department chair for review.
- Submit completed application to the Department of Art Education's office by Oct. 1 for the following spring semester; by March 1 for the following fall semester.

Teacher licensure

Upon completion of the Bachelor of Fine Arts degree in art education and with the recommendation of the Department of Art Education and School of Education, students are eligible to receive initial teacher licensure from the Virginia Department of Education. For additional information on licensure renewal, or add-on endorsement, contact the Department of Art Education

office. In Virginia initial licensure requires successful completion of the Praxis Examinations. Applicants for initial licensure must take the Praxis I Examination and Praxis II Specialty Area Test in Art Content Knowledge. Praxis I should be taken prior to application for admission to the Art Teacher Preparation Program; the specialty area examination should typically be taken in one's final semester.

Students should request that their Praxis I and Praxis II test scores be reported to VCU's School of Education and the Virginia Department of Education. Before a recommendation for licensure can be sent to the Teacher Licensure Division of the Virginia Department of Education, these test scores must be on file with the School of Education's Office of Academic Services.

An undergraduate degree holder in another field wishing to obtain teacher licensure in art should contact the Department of Art Education office.

Degree requirements in art education

Content area (59 credits)	credits
Foundation program studios	14
Studios and electives	30
Art history	15
Professional education (33 credits)	
ARTE 250 Computer Technology in Art Education	3
ARTE 310 Foundations of Art Education	3
ARTE 311 Art Education Curriculum and Instructional Procedures	3
ARTE 401 Art Education Elementary Materials and Practicum*	4
ARTE 402 Art Education Secondary Materials and Practicum*	4
ARTE 404 Student Teaching Seminar**	1
TEDU 485 Student Teaching-Elementary**	6
TEDU 486 Student Teaching-Secondary**	6
Special education elective	3
General education (31 credits)	
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
EDUS 301 Human Growth and Development	3
Literature	3
Quantitative reasoning elective***	3
Laboratory science	4
Social science	3
History	3
Humanities	3
General studies elective	3

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Additional requirements

- * Passing scores on Praxis I (Reading, Writing, Mathematics) and admission to Art Teacher Preparation Program (2.5 GPA required)
- ** Approval to student teach (2.5 GPA required)
- *** In accordance with the school's general education requirements, a student may demonstrate competence in mathematics by scoring at least 550 on the mathematics portion of the SAT test or by earning a "B" or higher grade in high school algebra II or geometry. A student who demonstrates this competence may satisfy the quantitative reasoning requirement by taking a mathematics course (MATH 131 or higher), critical thinking (PHIL 221) or logic (PHIL 222). A student who is not able to demonstrate competency in math with the SAT or high school math grades must take a college level mathematics course (MATH 131 or higher).

Courses in art education (ARTE)

ARTE 121-122 The Individual in the Creative Process
 Continuous course; 1 lecture, 1 seminar and 2 studio hours. 3-3 credits. Not offered for credit to art majors. Analysis of creative processes via reflection on the self-in-action. Participation in art experiences as a means to the interpretation and enjoyment of art forms, and the implication of art for society. The course aims to increase perceptual openness to, sensitivity to and understanding of the artistic experience.

ARTE 250 Computer Technology in Art Education
 Semester course; 2 lecture and 3 studio hours. 3 credits. For art education majors only. The use of computer as a tool for creating electronic imagery, as a filtering mechanism for traditional media and to develop teaching materials for the pre-K through 12th-grade classroom. The course includes an introduction to presentation technology, digital imaging and Web page design. Ethical and copyright issues related to new technologies will be addressed.

ARTE 301-302 Art for Elementary Teachers
 Continuous course; 1 lecture, 1 seminar and 2 studio hours. 3-3 credits. The nature of art and its function in the lives of individuals and society is considered in addition to materials and methods for guiding the visual expression of children.

ARTE 310 Foundations of Art Education
 Semester course; 3 lecture hours. 3 credits. For art education majors only or by approval of the department chair. An examination of art education within the curricular structure of educational programs and the developmental growth of children. Students will explore the historical, philosophical and sociological foundations of art in education, including art education's development and current roles.

ARTE 311 Art Education Curriculum and Instructional Procedures
 Semester course; 2 lecture and 3 studio hours. 3 credits. For art education majors only or by approval of the department chair. Prerequisite: ARTE 310. A study of

the principles of learning, instruction and curriculum in art education programs. Students will develop teaching competencies through micro-teaching experiences, analysis of instructional methods and teaching styles. Writing intensive.

ARTE 353 Art and Perceptual Communication
 Semester course; 3 lecture hours. 3 credits. A study of the function of art as communicative media through the senses. Emphasis will be placed on the analysis of the principles of art and design that affect the perception of various art forms.

ARTE 401 Art Education Elementary Materials and Practicum
 Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: Admission to the Art Teacher Preparation Program. Completion of ARTE 311. For art education majors only or by the approval of the department chair. A preparatory experience with observation and participation in art programs in elementary grades prior to student teaching. This course explores art materials, techniques and teaching methods suitable for this level; and analyzes evaluation strategies appropriate for art. Writing intensive.

ARTE 402 Art Education Secondary Materials and Practicum
 Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: Admission to the Art Teacher Preparation Program and completion of ARTE 311. For art education majors only or by approval of department chair. A preparatory experience with observation and participation in art programs in middle school, secondary school and nontraditional settings prior to student teaching. This course explores art materials and techniques suitable for these levels, examines developmental performance levels and analyzes evaluation methods appropriate for art. Writing intensive.

ARTE 404 Student Teaching Seminar
 Semester course; 1 seminar hour. 1 credit. For art education majors only. Corequisites: TEDU 485 and 486. A seminar concurrent with student teaching that gives students an opportunity to discuss and evaluate their progress in teaching assignments and other related activities.

ARTE 408 Two-dimensional Art Experiences
 Semester course; 1 seminar and 4 studio hours. 3 credits. Not offered for credit to art majors. The course explores the media, techniques and concepts of drawing, painting and printmaking.

ARTE 409 Three-dimensional Art Experiences
 Semester course; 1 seminar and 4 studio hours. 3 credits. Not offered for credit to art majors. Exploration of sculptural concepts with three-dimensional materials such as wood, metal, clay, fiber, plaster, plastic and glass.

ARTE 450 Art for the Exceptional Student
 Semester course; 2 lecture and 3 studio hours. 3 credits. Open to all majors. A study of the unique characteristics of exceptional students as related to involvement in the arts. The course examines disabled, aged, gifted, talented and other exceptional learners, and may include practicum and field experiences.

ARTE 491 Special Topics

Semester course; variable credit. May be repeated for a maximum of nine credits with different content. A seminar and/or workshop offered on a variety of art education issues not included in the regular curriculum. See the Schedule of Classes for particular topics covered each semester.

ARTE 492 Independent Study

Semester course; variable hours. 1-6 credits per semester; may be repeated for a maximum total of six credits. Prerequisites: Consent of department chair and instructor. Offered to art education majors only. This course will be limited to those few students who have demonstrated an exceptional level of ability and intense commitment to a particular area.

ARTE 501-502 Concepts in Art Education

Continuous course; 1 seminar and 4 studio hours. 3-3 credits. A sequence of studies organized around six major components: communications, expressive media, conceptual expression, teaching strategies, teacher-affective attributes and self-managing abilities.

ARTE 508 Two-dimensional Art Experiences

Semester course; 2 seminar and 3 studio hours. 3 credits. Not offered for credit for studio art majors. The course explores the media, techniques and concepts of drawing, painting and printmaking.

ARTE 509 Three-dimensional Art Experiences

Semester course; 2 seminar and 3 studio hours. 3 credits. Not offered for credit for studio art majors. Exploration of sculptural concepts with three-dimensional materials such as wood, metal, clay, fiber, plaster, plastic and glass.

ARTE 520 Teaching Concepts Through the Arts

Semester course; 1 lecture, 1 seminar, and 3 studio hours. 3 credits. Open to all graduate students. Students will investigate and compare traditional and contemporary patterns of expression, develop experiential techniques for teaching concepts and participate in a series of activities that reveal relationships among the arts and other subject areas. Seminars will include guests from the visual, performing and literary arts.

ARTE 550 Art for the Exceptional Learner

Semester course; 2 lecture and 3 laboratory hours. 3 credits. A study of exceptional learners including handicapped, gifted, talented, aged and others, and their participation in and appreciation for the visual arts. Courses may include practicum and field experiences.

ARTE 553 Art and Perceptual Communication

Semester course; 3 lecture hours. 3 credits. Explores art and perception as a means of effectively communicating through the senses. Emphasizes the analysis of the principles of art and design that affect the perception of art, advertising and other media. Investigates light, color, perception, illusions and other related topics.

ARTE 591 Topics in Art Education

Semester course; variable credits from 1-3. May be repeated for a maximum of nine credits with different content. The course will explore selected topics of current interests or needs relative to art education. See Schedule of Classes for specific topic to be offered each semester.

Department of Art History

James D. Farmer

Associate Professor and Department Chair (1992)
 B.F.A. 1982 University of Texas at Austin
 M.A. 1986 University of Texas at Austin
 Ph.D. 1992 University of Texas at Austin

The Department of Art History offers its majors a program that acquaints them with the humanistic discipline of art historical inquiry. While providing students with the opportunity for a broad education drawing on the liberal arts and humanities, the department also emphasizes a close bond with the studio and performing arts and enjoys a close relationship with the other departments in the School of the Arts.

Recognizing the diverse interests of undergraduate students and the varied practical applications of art history, the department offers its majors a choice among four distinct curricula culminating in either the Bachelor of Arts or the Bachelor of Fine Arts degree. The B.A. degree (curricula A or B) focuses on academic disciplines in the liberal arts.

Curriculum A is a program with a liberal arts curriculum composed of an academic course of study exposing the student to the scholarship and research methods of not only art history, but related disciplines in the humanities. This program gives students the best possible background for future graduate work in art history.

Curriculum B, with strong liberal arts and studio components, is a comprehensive architectural history program which emphasizes the study of both Western and non-Western architecture. This program affords the student an excellent background for graduate work in architectural history and/or art history, as well as career opportunities in the field. Given the region's rich and diverse architectural resources, this program provides an unusual opportunity for on-site studies. By providing the student with additional studio training in art history, such as architectural presentation graphics and urban studies and planning, this program offers a well-rounded knowledge of architectural history.

Along with these curricula, the department also offers a minor in art history, consisting of 18 credits in the minor field. These credits must include either six in the survey of Western art or eight in the survey of world art, plus 12 credits in four additional

period courses. The student must select one course each from the following categories: (1) Classical, (2) Medieval, (3) Renaissance, (4) Baroque/18th century, (5) 19th and 20th century and (6) non-Western.

Degree requirements in art history

	credits
Art historical – Curriculum A	
Studios	7
Art history	39
Aesthetics or criticism	3
General studies	
ENGL 101, 200 Writing and Rhetoric Workshop I, II	6
Literature	6
German or applicable Romance language	14
History	15
Archaeology, religion, anthropology or cultural geography	9
Electives to include three credits in mathematics* and four credits in laboratory science	21
	120
Architectural history – Curriculum B	
Fine arts studios	11
Photography	3
Architectural history	21
Art history	12
Aesthetics or criticism	3
General studies	
German or applicable Romance language	14
History	12
ENGL 101, 200 Writing and Rhetoric Workshop I, II	6
ENGL 201-202 Western World Literature I-II	6
ANTH 103 Introduction to Anthropology	3
ANTH 105 Introduction to Archaeology	3
Science	
PHYS 101, PHYZ 101L Foundations of Physics and Laboratory	4
GEOG 105, GEOZ 105L Physical Geology and Laboratory	4
RELS/INTL 311 or 312 Religions of the World	3
Two of the following:	6
URSP 116 Introduction to the City	
URSP 261 Design of the City	
URSP 310 Introduction to Public Planning	
Mathematics*	3
Unrestricted VCU electives	6
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* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Courses in art history (ARTH)

ARTH 102 Contemporary Issues in Art and Design

Semester course; 3 lecture hours. 3 credits. An introduction to contemporary interpretive issues and ideas that define the modern art and design worlds. Topics include analysis of formal properties of art such as space, structure and materials, concepts of meaning, such as subject matter, symbolism and iconography, and issues of context, such as the impact of tradition, religion, politics, aesthetics, and cultural values. Examples include works drawn from all major Western and non-Western styles worldwide and throughout history.

ARTH 103, 104 Survey of Western Art

Semester courses; 3 lecture hours. 3, 3 credits. First semester: Prehistoric through Gothic. Second semester: Italian Renaissance through Modern. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 145, 146 Survey of Asian Art

Semester courses; 3 lecture hours. 3, 3 credits. First semester: the art of India, Southeast Asia and the Middle East. Second semester: the art of China, Korea and Japan. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 207 Introduction to Non-Western Art

Semester course; 3 lecture hours. 3 credits. Art will be presented as an integral aspect of each culture from the areas of China, Japan, Africa, Oceania, Native America, and pre-Columbian Central and South America. Aesthetic appreciation will be enhanced through a presentation of various philosophies, customs and values. Illustrated lectures and analytical practices will be supported by the student visiting local museums and galleries to examine selected works of art.

ARTH 270, 271 History of the Motion Picture

Semester courses; 3 lecture hours. 3, 3 credits. The history of development of the motion picture from its early beginnings to the present, with both technical and aesthetic consideration. Students engage in analysis and discussion after viewing selected films.

ARTH 300 Prehistoric and Ancient Art and Architecture

Semester course; 3 lecture hours. 3 credits. A survey of the artistic expressions of the major prehistoric and ancient cultures of Europe, the Near East, Egypt and the Aegean.

ARTH 301 Art and Architecture of Ancient North America

Semester course; 3 lecture hours. 3 credits. A survey of the major artistic traditions of ancient America, north of Mexico, including Woodlands, Mississippian, Plains, Eskimo, Northwest Coast and the Southwest.

ARTH 305 Classical Art and Architecture

Semester course; 3 lecture hours. 3 credits. A survey of the development of Greek, Etruscan and Roman architecture, sculpture, painting and the minor arts from their beginnings to the early fourth century A.D.

ARTH 310 Medieval Art and Architecture

Semester course; 3 lecture hours. 3 credits. Survey of Western art and architecture between A.D. 300 and 1400.

ARTH 315 Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. An examination of the Renaissance in Italy and Northern Europe. Painting, sculpture and architecture of the 14th, 15th and 16th centuries.

ARTH 316 Northern Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. Painting, architecture and sculpture during the North European Renaissance.

ARTH 317, 318 History of Architecture

Semester courses; 3 lecture hours. 3, 3 credits. First semester: major architectural forms from ancient Egypt through Medieval period. Second semester: architecture in Europe and America from the Renaissance to the present.

ARTH 320 Baroque and Rococo Art and Architecture

Semester course; 3 lecture hours. 3 credits. The art and architecture of Italy and northern Europe between 1600 and 1750.

ARTH 325 19th-century Art and Architecture in Europe

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 103, 104. Study of European art and architecture between 1770 and 1900.

ARTH 330 20th-century Art and Architecture

Semester course; 3 lecture hours. 3 credits. A survey of 20th-century art with emphasis on architecture, painting and sculpture.

ARTH 335 Pre-Columbian Art and Architecture

Semester course; 3 lecture hours. 3 credits. A study of the major artistic traditions of ancient America (i.e., Maya, Aztec and Inca). The course concentrates on Meso-America and the Andean Region.

ARTH 338 Colonial Art and Architecture of Latin America

Semester course; 3 lecture hours. 3 credits. A study of the major artistic traditions in Latin America from the 16th to the end of the 18th century.

ARTH 339 Modern and Contemporary Art and Architecture of Latin America

Semester course; 3 lecture hours. 3 credits. A study of 19th- and 20th-century art in Latin America focusing on the major movements and artists of Mexico, the Caribbean, Central and South America.

ARTH 340 Art and Architecture of the United States

Semester course; 3 lecture hours. 3 credits. A survey of painting, sculpture and architecture from the Colonial period to the present.

ARTH 342/AFAM 342 African-American Art

Semester course; 3 lecture hours. 3 credits. A study of the art forms produced by Americans of African origin from the 17th century to the present with an emphasis on contemporary trends in black art.

ARTH 350/AFAM 413 African and Oceanic Art

Semester course; 3 lecture hours. 3 credits. A study of the architecture, painting, sculpture and civilizations of the major art-producing tribes of West Africa and Oceania from the 13th century to the present.

ARTH 358/AFAM 358 African Art and Architecture

Semester course; 3 lecture hours. 3 credits. A study of African art and architecture from prehistoric times to the present. Special emphasis is placed on form, content, function and meaning, as well as the impact of African art on modern and African-American art.

ARTH 360 Introduction to Conservation

Semester course; 3 lecture hours. 3 credits. An introduction to the art and science of art conservation. The course is designed to acquaint artists and art historians with the basic methods of deterioration, examination and treatment of works of art.

ARTH 370 History of Animated Film

Semester course; 3 lecture hours. 3 credits. The history of animation as an art form, from early experimental to popular culture to independent animation. Design, structure and technique are considered.

ARTH 404 Studies in Prehistoric and Ancient Art

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 405 Studies in Greek, Etruscan and Roman Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 413 Gothic Art

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. Origins and developments of the Gothic style with emphasis on the architecture and sculpture of France.

ARTH 415 Early Italian Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An investigation of painting, sculpture and architecture of the Duecento, Trecento and Quattrocento in Italy.

ARTH 417 The High Renaissance

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. Intensive consideration of the great masters of Italian art in the early 16th century.

ARTH 419 Studies in Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subject to be offered each semester.

ARTH 420, 421 The Baroque In Northern Europe; The Baroque In Southern Europe

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: Three hours of art history or permission of instructor. First semester: an investigation of the painting, sculpture and architecture of France and the Low Countries. Particular emphasis will be given to the diverse characteristics of the Aristocratic and Bourgeois stylistic trends of the period. Second semester: an investigation of the painting, sculpture and architecture of Italy, Spain, Germany and Austria. The relationship of church and state will be a primary theme of the course.

ARTH 424 Studies in Baroque and Rococo Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 425, 426 Neoclassicism, Romanticism, Realism and Impressionism through Fin-de-Siecle

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: Three hours of art history or permission of instructor. First semester: a detailed analysis of European art during the first half of the 19th century with special emphasis on French and English painting. Consideration also will be given to artistic and cultural interrelationships marking the transition from the 18th to the 19th century. Second semester: a detailed analysis of European art during the latter 19th century. Consideration also will be given to artistic and cultural interrelationships heralding the transition to the 20th century.

ARTH 427 Renaissance Art and Architecture of Colonial Latin America, 1500-1650

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An in-depth study of the most important contributions of Renaissance Ibero-American art throughout the Western Hemisphere in architecture, sculpture and painting.

ARTH 429 Studies in 19th-century Art

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 430 Modern Painting

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An analysis of the major movements in 20th-century painting.

ARTH 431 Modern Sculpture

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. The evolution of 20th-century sculpture considering major movements and artists.

ARTH 433 Modern Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An investigation of major architectural periods and achievements in commercial and residential designs from 1850 to the present; tracing the development of the International Style, traditional architecture, the evolution of the skyscraper, Art Nouveau and the works of Henry Hobson Richardson, Louis Sullivan and Frank Lloyd Wright.

ARTH 435, 436 Contemporary Art I, II

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: Three hours of art history or permission of instructor. First semester: an in-depth examination of art from 1940-1960. Will include discussion of background and context. Second semester: a continuation of detailed analysis of art from 1960 to the present.

ARTH 439 Studies in 20th-century Art

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 440/AFAM 440 Contemporary Art and Architecture of Africa

Semester course; 3 lecture hours. 3 credits. A study of the impact on African art and architecture of Colonialism, urbanization and modernization. Special emphasis is placed on the search for a new identity by contemporary African artists.

ARTH 441 Architecture of the United States

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An in-depth investigation of major architectural developments from the Colonial period to the present, including an analysis of European prototypes.

ARTH 442 Architecture in Richmond

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. History and origins of Richmond area architecture.

ARTH 443 Folk Art of the United States

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An examination of the development and history of three centuries of tradition in folk art applicable to the five major areas: painting, sculpture, furniture, decorated household objects and architectural decoration.

ARTH 444 Studies in the Art of the United States

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 445 The Art of India

Semester course; 3 lecture hours. 3 credits. Prerequisite: General background in art, history or religion of the area. The Indus Valley civilization through Maurya, Sunga, Kushana, Andhra, Gupta and Pallava periods.

ARTH 447 The Art of Southeast Asia

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 145, 146 or general background in the art, history or religion of the area. The art of Burma, Malaya, Thailand, Cambodia, Indochina and Indonesia.

ARTH 449 Studies in Asian Art

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 450 Art and Architecture of Mesoamerica

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An in-depth study of the artistic traditions of Mesoamerica (i.e., Maya, Aztec and Olmec).

ARTH 451 Art and Architecture of Andean America

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An in-depth study of the pre-Columbian art production of the Andean region (i.e., Chavin, Moche and Inca art).

ARTH 452 Studies in Pre-Columbian Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An in-depth examination of selected art and issues of the period (Ancient America). See the Schedule of Classes for specific subjects to be offered.

ARTH 454 Studies in African and Oceanic Art

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An in-depth examination of selected art and issues of the period. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 455 Aesthetics and Modern Theories of Art

Semester course; 3 lecture hours. 3 credits. An investigation of modern aesthetic theories and concepts in art with a foundation in premodern aesthetics. Writing intensive.

ARTH 456 Ideas and Criticism in Art

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. An in-depth examination of modern concepts in the literature of art criticism with particular emphasis on the principal writings of leading American critics.

ARTH 457/WMNS 457 Women, Art and Society

Semester course; 3 lecture hours. 3 credits. A re-examination of a variety of issues concerning women, art and society: the position assigned women within the history of art as it relates to historical place and the aesthetic values of the canon, the gendering of style, patronage, audience and gaze. Through a survey of images of and by women, as well as through an analysis of art historical and critical texts, this course addresses the question: "How are the processes of sexual differentiation played out across the representations of art and art history?"

ARTH 459 Studies in Aesthetics, Theory and Criticism of Art

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected topics. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 461 Art and Architecture in Latin America, 1915 to the Present

Semester course; 3 lecture hours. 3 credits. This course studies the finest expressions of modern Latin American art within the context of the arrival of Modernism in art, improved communications and travel, the growth of the middle class, population explosion, industrialization, urbanization, movements for reform and revolution, and the struggle against economic and cultural dependence and homogenization. The course is hemispheric in scope but devotes special attention to Mexico, Brazil and Argentina.

ARTH 469 Studies in Museum Methods

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. An in-depth examination of selected topics. See the Schedule of Classes for specific subjects to be offered each semester. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education.

ARTH 470 History of Animated Feature Film

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An analysis of selected animated feature films, including animation combined with live action. Both American and foreign films will be considered.

ARTH 471 Film Theory

Semester course; 3 lecture hours. 3 credits. Theories and criticism dealing with the medium, form, function and psychology of film. Students will examine the medium through reading and discussion of such film theorists

and aestheticians as Munsterberg, Eisenstein, Arnheim, Bazin, Kracauer, Burch and Langer as well as through a comparison of film and the other arts.

ARTH 472 History of Photography

Semester course; 3 lecture hours. 3 credits. Prerequisites: Three hours of art history or permission of instructor. An investigation of the basic trends in the history of photography. This course will deal with the chronological development of the art, the role of the photographer, the properties of photography that make it unique and those that ally it to the other visual arts.

ARTH 474 Studies in Film

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth examination of selected topics. See the Schedule of Classes for specific subjects to be offered each semester.

ARTH 489 Topics in Advanced Art History

Semester course; 3 lecture hours. 3 credits. May be repeated. An in-depth study of a selected topic in art history not included in the curriculum. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 493 Museum Internship

Semester course; 9 to 18 studio hours. 3 to 6 credits. May be repeated with changing content for a maximum of 12 credits. Prerequisites: ARTH 469 and permission of the chair of the department of art history. Fieldwork in a local or regional museum. Topics include museum administration, museum ethics, collections maintenance and management, curatorial and exhibition issues, and education. May be repeated with changing content for a maximum of 12 credits.

ARTH 497 Directed Research Project

Semester course; 3 credits. Prerequisites: Permission of instructor and department chair. Advanced individual work on a subject to be formulated in writing by the student and the instructor. Writing intensive.

ARTH 502 Historical Preservation and Architectural History

Semester course; 3 lecture hours. 3 credits. An introduction to the methods or research, record keeping and reporting used in architectural history, and to the evolution of the discipline, especially in relation to historic preservation.

ARTH 504 Advanced Studies in Prehistoric and Ancient Art

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of artistic development in one or more ancient and prehistoric cultures, such as in Africa, Asia, Europe or the Americas. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 505 Advanced Studies in Greek, Etruscan, and Roman Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the art and ideas of the classical Greek and Roman cultures, including the Etruscans. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 519 Advanced Studies in Renaissance Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development

of the art and ideas of the Proto-Renaissance, Early Renaissance or High Renaissance in Europe or Latin America. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 524 Advanced Studies in Baroque and 18th-century Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of England, France, the low countries, Italy, Spain, Latin America, Germany and Austria during the Baroque period and/or 18th century. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 529 Advanced Studies in 19th-century Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of the 19th-century including Neoclassicism, Romanticism, Realism Impressionism in Europe and/or America. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 539 Advanced Studies in 20th-century Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of the 20th century in Europe and/or America. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 542 Advanced Studies in the Architecture of Richmond

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An advanced, detailed study of a selected aspect of the development of the architecture of the city of Richmond. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 544 Advanced Studies in Art and Architecture of the United States

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of the United States. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 549 Advanced Studies in the Art and Architecture of Asia

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed study of a selected aspect of the development of the art and ideas of India, China, Korea, Japan, Southeast Asia or the Middle East. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 552 Art and Architecture of Central, Eastern and Southern Africa

Semester course; 3 lecture hours. 3 credits. A study of the major art-producing cultures of Central Africa, including the Cameroon, Gabon and Zaire; East Africa including Kenya, Tanzania and Mozambique; and Southern Africa, Bushman art, prehistoric cave paintings and rock engravings.

ARTH 554 Advanced Studies in African or Oceanic Art and Architecture

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. An advanced,

detailed study of a selected aspect of the development of the art and ideas of African or Oceanic cultures. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 555 Advanced Studies in Aesthetics and Art Theory

Semester course; 3 lecture hours. 3 credits. An advanced, detailed investigation of aesthetic theories and concepts in art.

ARTH 556 Advanced Studies in Ideas and Criticism in Art

Semester course; 3 lecture hours. 3 credits. An advanced, detailed examination of specific concepts in the literature of art criticism with particular emphasis on the principle writings of leading American critics.

ARTH 569 Advanced Studies in Museum Methods

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of nine credits. Advanced instruction in the major aspects of museum administration. Lectures by museum personnel and workshops in a variety of museums. A major research project is required.

ARTH 571 Advanced Studies in Film Theory

Semester course; 3 lecture hours. 3 credits. Advanced, detailed study of the theories and criticism of film, dealing with medium, form, function and psychology.

ARTH 574 Advanced Studies in Film

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed examination of selected topics in the history of film. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 575 Advanced Studies in the History of Photography

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. An advanced, detailed examination of selected topics in the history of photography. See the Schedule of Classes for specific topic to be offered each semester.

ARTH 580 Registration Procedures for Museums

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. A study of the standard registration procedures and the current vocabulary employed by the profession. Professional ethics will be stressed to enable the students to become more fully aware of the importance within the museum system.

ARTH 581 Museum Exhibitions

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. The study of exhibitions for museums including design, fabrication, lighting, brochures, invitations and publications.

ARTH 582 Educational Program and Public Relations for Museums

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. A study of programming for an art center/museum, including organization of permanent displays, special exhibitions, lectures, docent programs for children and adults and traveling exhibition services. Special emphasis will be placed on the use of audiovisual materials and techniques in the exhibitions and interpretation programs, as well as the techniques of public information, including press releases, use of television, radio, newspapers and scholarly publications.

ARTH 583 Curatorship and Connoisseurship

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. An examination of the curator's relationship and responsibilities to the museum system, research methods, methods of acquisition, organization of museum reference library (including slides and other audiovisual materials), exhibition catalogues, clippings and file and computer retrieval systems.

ARTH 584 Museum Administration

Semester course; 3 lecture hours. 3 credits. Prerequisite: ARTH 464, 465 and/or permission of instructor. A study of museum organization, including staff organization and relationship of director to board, building and grounds, heating and humidity control, guarding and fire control, special installations and shops, membership programs, museum finances for operation and acquisition funds, grants, promotion, development and overall responsibility to the community and profession.

ARTH 590 Art Historiography and Methodology

Semester course; 3 lecture hours. 3 credits. Basic methodology for beginning art history graduate students. An examination of the traditional research methods of the art historical discipline, geared to familiarize students with standards in research and scholarship.

ARTH 591 Topics in Advanced Art and Architectural History

Semester course; variable; 1-6 credits. May be repeated for a maximum of nine credits. Prerequisite: Permission of instructor. An in-depth study of a particular aspect of the art and architecture of both Old and New World cultures. Course consists exclusively of extended off-campus trips to sites and collections throughout the United States and abroad. See the Schedule of Classes for specific topics to be offered each semester.

ARTH 593 Advanced Museum Internship

Semester course; 9 to 18 studio hours. 3 to 6 credits. May be repeated for a maximum of nine credits. Prerequisite: Permission of instructor, chair of the graduate committee and/or chair of the Department of Art History. Advanced fieldwork in a local, regional or national museum.

Department of Communication Arts and Design

Matthew Woolman

Associate Professor and Communication Design
Program Acting Chair (1997)
B.A. 1990 Oberlin College
M.F.A. 1996 Virginia Commonwealth University
M.B.A. 2002 Virginia Commonwealth University

The Department of Communication Arts and Design offers intense study of visual communications and design. The program focuses on the development of innovative thinking and creative problem-solving abilities required for professional excellence. The curriculum is oriented toward understanding visual form and structure, professional skills,

and social and environmental awareness. The information/communication orientation of contemporary society relies on this discipline to create visual images and concepts, connecting people to their economic, social, cultural and political lives.

To face the challenges in this era of rapid technological change, the department prepares students for future societal needs by fostering a spirit of experimentation and inquiry, and by integrating computer and electronic media study into the program.

The Department of Communication Arts and Design offers a Bachelor of Fine Arts degree. This degree is offered in three programs, communication arts including illustration and scientific and preparatory medical illustration, which focuses on visual imaging; communications design, which focuses on the design of visual communications; and kinetic imaging, which focuses on video and three-dimensional animation.

After completing the Art Foundation Program, separate sophomore core programs further develop fundamental art and design skills essential to each program. Upper-level study in the Communication Arts Program includes courses in digital imaging, illustration, and scientific and preparatory medical illustration. Students in the Communication Design Program take courses in art direction, graphic design, typographic design, three-dimensional design (environmental/exhibit/package) and interactive multimedia design (interactive video, Internet communication and Web site design). Students in the Kinetic Imaging Program take courses in video, computer graphics, three-dimensional modeling and animation. Students are required to follow the policies and procedures of the most current issue of the department's student handbook.

Communication Arts Program**Illustration**

Illustration is the component of visual communication that encourages the use of drawn, painted or constructed imagery to communicate ideas. Illustration makes use of a wide range of media (both traditional and contemporary). It is often accompanied by text and is created with the intent of being reproduced for public dissemination.

Scientific and preparatory medical illustration

This concentration prepares students for careers as scientific illustrators and is preparatory for advanced study in the field of medical illustration. Medical and scientific illustrators are trained to communicate with medical and scientific professionals and have the skills and knowledge to provide illustrations that present complex scientific and medical information clearly and accurately. (Students in this emphasis are expected to have satisfied the mathematics requirement by completion of algebra II or geometry at the secondary level with a grade of "B," or an SAT score of 550 or higher or the equivalent score on a comparable standardized test. If they have not, they must take an additional three credits in mathematics.)

Communication Design Program**Art direction**

Courses in art direction explore the creative synthesis of aesthetic and business objectives for the purpose of effective communication. Emphasis is placed on conceptual development of communication ideas, the development of communication strategy involving the use of media and the coordination of creative activities.

Graphic design

Courses in graphic design are concerned with the creation and production of solutions to visual communications problems in a variety of media and environments.

Interactive multimedia design

Courses in this area focus on the use of contemporary electronic and computer media to meet communication needs. Emphasis is placed on design, development, authoring and production of integrated visual/textual/audio solutions.

Typographic design

Courses in this area explore the use of type and typography as an expressive and functional communicative tool. Emphasis is placed on understanding typographic design criteria that meet the reader's needs,

the communicator's intent and the designer's formal sensibilities.

Three-dimensional design

Courses in this area explore the design of three-dimensional solutions to communication problems. Emphasis is on programmatic evaluation and the influence of functional, structural and contextual criteria on solutions.

Kinetic Imaging Program

This concentration explores the creative synthesis of sound and the moving image through the mediums of film, video and animation. Emphasis is placed upon the artistic and communicative uses of media in contemporary society. Three-dimensional modeling courses are designed for students who desire advanced study in the use of the computer as a tool for designing, modeling and rendering three-dimensional objects in space. Emphasis is placed on electronic animation as a communication discipline and career.

Multidisciplinary Program

Students with clearly defined personal goals may develop an individual program of study after their sophomore year. A program plan encompassing study in both communication arts and communication design is developed in close cooperation with the faculty adviser. To allow for sufficient in-depth study in the two chosen areas, successful completion of an additional 16 credits in upper-level studio courses is required. These courses are divided between the selected areas and must be taken in "emphasis area studios." An additional semester beyond what would normally be taken to fulfill requirements may be needed to complete this option. The individual program proposal requires the approval of the department chair.

Degree requirements in communication arts and design

Studios	credits
Foundation program	16
Visual communications fundamentals	24
Emphasis area	33 (CA) or 39 (CD)

General education academic electives	24		
Introduction to the arts	1	CARD 327 Digital Illustration	- 3
Art history and theory	20	CARD 324 Figure in Illustration II	- 3
Open electives	12 (CA) or 6 (CD)	CARD 326 Editorial Illustration I	- 3
		General education elective: science with laboratory	- 4
		Open elective	- 3
	130		18 16

Communication Arts Program

Illustration emphasis

	credits	
	fall	spring
Freshman year		
ARTF 151 Foundation Studio	4	-
ARTF 161 Figure Drawing I (5 weeks)	1	-
ARTF 162 Perspective and Three-dimensional Line Drawing (5 weeks)	1	-
ARTF 100-level technical laboratory elective (5 weeks)	1	1
ARTH 102 Contemporary Issues in Art and Design	3	-
ENGL 101 Writing and Rhetoric Workshop I	3	-
ARTF 152 Foundation Studio	-	4
ARTF 163 Two-dimensional Design Methods (5 weeks)	-	1
ARTF 164 Color Research Laboratory (5 weeks)	-	1
ARTH 104 Survey of Western Art (Italian Renaissance-Modern)	-	3
ENGL 200-level literature elective	-	3
	13	13

Sophomore year

CARD 200 Visual Studies – Drawing	3	-
CARD 203 Visual Studies – Design	3	-
CARD 224 Introduction to Illustrative Drawing	3	-
CARD 207 Introduction to Computer Techniques	3	-
CARD 252 History of Visual Communications I	3	-
ENGL 200-level literature elective	3	-
CARD 206 Anatomy for Illustration	-	3
CARD 211 Typographics I	-	3
CARD 208 Communication Arts Computer Techniques	-	3
CARD 253 History of Visual Communications II	-	3
CARD 331 Digital Imaging in Visual Communication	-	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
	18	18

Junior year

CARD 321 Illustration Media and Techniques I	3	-
CARD 323 Figure in Illustration I	3	-
CARD 325 Color Theory and Practice	3	-
General education elective*	3	-
General education elective*	3	-
General education elective*	3	-

Senior year

CARD 424 Visual Journalism in Illustration	3	-
CARD ___ Emphasis area studio	3	-
CARD ___ Emphasis area studio	3	-
CARD ___ Visual Communication Lecture	3	-
Open elective	3	3
CARD 403 Senior Studio	-	3
CARD 407 Senior Portfolio	-	3
CARD 356 Studio Management	-	3
Open elective	-	2
	15	14

Total credits

125

* General education electives must include three credits in social science, three credits in mathematics and three credits in humanities.

Scientific and Preparatory Medical Illustration emphasis

	credits	
	fall	spring
Freshman year		
ARTF 151 Foundation Studio	4	-
ARTF 161 Figure Drawing I (5 weeks)	1	-
ARTF 162 Perspective and Three-dimensional Line Drawing (5 weeks)	1	-
ARTF 100-level technical laboratory elective (5 weeks)	1	-
ARTH 102 Contemporary Issues in Art and Design	3	-
ENGL 101 Writing and Rhetoric Workshop I	3	-
ARTF 152 Foundation Studio	-	4
ARTF 163 Two-dimensional Design Methods (5 weeks)	-	1
ARTF 164 Color Research Laboratory (5 weeks)	-	1
ARTF 100-level technical laboratory elective (5 weeks)	-	1
ARTH 104 Survey of Western Art (Italian Renaissance-Modern)	-	3
ENGL 200-level literature elective	-	3
	13	13

Sophomore year

CARD 200 Visual Studies – Drawing	3	-
CARD 203 Visual Studies – Design	3	-
CARD 224 Introduction to Illustrative Drawing	3	-
CARD 207 Introduction to Computer Techniques	3	-
CARD 252 History of Visual Communications I	3	-
ENGL 200-level literature elective	3	-

CARD 206 Anatomy for Illustration	-	3
CARD 211 Typographics I	-	3
CARD 208 Communication Arts Computer Techniques	-	3
CARD 253 History of Visual Communication II	-	3
CARD 331 Digital Imaging in Visual Communication	-	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
	18	18

Junior year

CARD 321 Illustration Media and Techniques I	3	-
CARD 323 Figure in Illustration I	3	-
CARD 325 Color Theory and Practice	3	-
General education elective*	3	-
BIOL 151/BIOZ 151L or BIOL 152/BIOZ 152L Introduction to Biological Science I** or II** and Laboratory	4	-
CARD 324 Figure in Illustration II	-	3
CARD 327 Digital Illustration	-	3
CARD 328 Scientific Illustration I	-	3
General education elective*	-	3
BIOL 205/BIOZ 205L Basic Human Anatomy and Laboratory***	-	4
	16	16

Senior year

CARD 306 Anatomy for Medical Illustration	3	-
CARD 329 Scientific Illustration II	3	-
CARD ___ Emphasis Area Studio Elective	3	-
CARD ___ Visual Communication Lecture	3	-
BIOL 206/BIOZ 206L Human Physiology and Laboratory***	4	-
CARD 356 Studio Management	-	3
CARD 403 Senior Studio	-	6
CARD __ Emphasis area studio elective	-	3
CARD ___ Emphasis area studio elective	-	3
General education elective	-	3
	16	15

Total credits

125

* General education electives must include three credits in social science and three credits in humanities. Students in this emphasis are expected to have satisfied the mathematics requirement by completion of algebra II or geometry at the secondary level with a grade of "B," or an SAT score of 550 or higher or the equivalent score on a comparable standardized test. If they have not they must take an additional three credits in mathematics.

** Students are encouraged to take an additional three credits in chemistry.

*** A grade of "C" or better is required in BIOL 151 and BIOZ 151L as a prerequisite for BIOL 205, BIOZ 205L, BIOL 206 and BIOZ 206L.

Communication Design Program

	credits	
	fall	spring
Freshman year		
ARTF 151 Foundation Studio	4	-
ARTF 161 Figure Drawing I (5 weeks)	1	-
ARTF 162 Perspective and Three- dimensional Line Drawing (5 weeks)	1	-
ARTF 100-level technical laboratory elective (5 weeks)	1	1
ARTH 102 Contemporary Issues in Art and Design	3	-
ENGL 101 Writing and Rhetoric Workshop I	3	-
General education elective	3	-
ARTF 152 Foundation Studio	-	4
ARTF 163 Two-dimensional Design Methods (5 weeks)	-	1
ARTF 164 Color Research Laboratory (5 weeks)	-	1
ARTH 104 Survey of Western Art (Italian Renaissance-Modern)	-	3
ENGL 200-level literature elective	-	3
General education elective	-	3
	16	16

Sophomore year

CARD 205 Design Methods and Processes	3	-
CARD 211 Typographics I	3	-
CARD 214 Imaging I	3	-
CARD 252 History of Visual Communications I	3	-
CARD 192 Managing Your Machine (5 weeks)	1	-
CARD 193 Visual Thinking (5 weeks)	1	-
CARD 194 Image Capturing and Editing (5 weeks)	1	-
CARD 212 Design Form and Communication	-	3
CARD 213 Intermediate Typography	-	3
CARD 216 Imaging II	-	3
CARD 195 Graphic Representation (5 weeks)	-	1
CARD 196 Type Technology and Application (5 weeks)	-	1
CARD 197 Output Technology and Production (5 weeks)	-	1
ENGL 200 Writing and Rhetoric Workshop II	-	3
	15	15

Junior year

CARD 310 Communication Design: Publications	6	-
CARD 312 Typographics II	3	-
CARD ___ Emphasis Area Studio	3	-
General education elective	3	3
General education elective	3	-
CARD 311 Communication Design: Interactive Design	-	6

CARD 412 Typographics III	-	3
General education elective: science with laboratory	-	4
	18	16

Senior year

CARD 410 Communication Design: Systems in Design	6	-
CARD ___ Emphasis area studio	3	3
CARD ___ Visual Communication Lecture	3	3
Open elective	2	3
CARD 411 Communication Design: Design Studio	-	6
	14	15

Total credits

125

Kinetic Imaging Program

	credits	
	fall	spring
Freshman year		
ARTF 151 Foundation Studio	4	-
ARTF 161 Figure Drawing I (5 weeks)	1	-
ARTF 162 Perspective and Three- dimensional Line Drawing (5 weeks)	1	-
ARTF 100-level technical laboratory elective (5 weeks)	1	-
ARTH 102 Contemporary Issues in Art and Design	3	-
ENGL 101 Writing and Rhetoric Workshop I	3	-
ARTF 152 Foundation Studio	-	4
ARTF 163 Two-dimensional Design Methods (5 weeks)	-	1
ARTF 164 Color Research Laboratory (5 weeks)	-	1
ARTF 100-level technical laboratory elective (5 weeks)	-	1
ARTH 104 Survey of Western Art (Italian Renaissance-Modern)	-	3
ENGL 200-level literature elective	-	3
	13	13

Sophomore year

CARD 208 Communication Arts Computer Techniques	3	-
CARD 233 Media Arts Survey	3	-
CARD 234 Introduction to Animation	3	-
CARD 239 Media Presentation	3	-
ENGL 200-level literature elective	3	-
General education elective	3	-
CARD 235 Electronic Animation I	-	3
CARD 236 Introduction to Video	-	3
CARD 237 Sound Communication	-	3
CARD 253 History of Visual Communications II	-	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
General education elective	-	3
	18	18

Junior year

CARD 304 Sound Communication	3	-
CARD 334 Electronic Animation I	3	-
CARD 336 Video I	3	-
General education elective	3	-
General education elective	3	-
Open elective	2	-
CARD 338 Computer Graphics II: 3-D Modeling	-	3
CARD 436 Video II	-	3
CARD ___ Emphasis area studio	-	3
General education elective	-	3
General education elective: science with laboratory	-	4
	<hr/>	<hr/>
	17	16

Senior year

CARD ___ Emphasis area studio	3	-
CARD ___ Emphasis area studio	3	-
CARD ___ Emphasis area studio	3	-
CARD 357 Critical Issues in Media	3	-
Open elective	3	-
CARD 403 Senior Studio	-	6
CARD 356 Studio Management	-	3
Open elective	-	3
Open elective	-	3
	<hr/>	<hr/>
	15	15

Total credits

125

Advancement in this department is based on completion of prerequisite courses. Successful completion of the Art Foundation Program is required as a prerequisite for all 200-level studio courses in the Department of Communication Arts and Design. Because of enrollment pressures, admission is by portfolio review administered only once yearly during the spring semester. Transfer students also must submit a portfolio to the department before acceptance will be granted. Acceptance into and successful completion of the foundation program or transfer equivalent does not guarantee entry into the department. Twenty-four credits of visual communications fundamentals must be completed before entering 300- and 400-level studio courses. Specific prerequisites for professional courses are in the course listings. Nonmajors who have completed the foundation program can take courses in the department with the permission of the assistant chair when space is available.

Equipment, materials and supplies in this program may cost in excess of \$1,000 per year, depending on the course of study.

Master of Fine Arts in Visual Communications

The Department of Communication Arts and Design prepares graduate students to assume a leadership role in a complex and expanding profession. To this end, the department develops the philosophy and personal direction of each student and focuses their resources on functional and expressive visual communications. Students concentrate on the philosophical, communicative and aesthetic relationships of visual problem solving and the interacting skills leading to the effective articulation of concepts. The Master of Fine Arts degree requires 60 credit hours.

See the Graduate and Professional Programs Bulletin for a more detailed description of this program.

Courses in communication arts and design (CARD)

CARD 191 Studio Topics in Communication Arts and Design

Semester course; 3-9 studio hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. Open to nonmajors. Topical studio focusing on visual exploration and the creation of expressive imagery in conjunction with functional communications. See the Schedule of Classes for specific topics to be offered.

CARD 192 Managing Your Machine

Semester course; 5 lecture/laboratory hours. 1 credit. Prerequisite: Successful completion of the Art Foundation Program. A design foundation workshop that emphasizes microprocessor hardware operations, software procedures and workflow methods necessary for contemporary communication design practice.

CARD 193 Visual Thinking

Semester course; 5 lecture/laboratory hours. 1 credit. Successful completion of the Art Foundation Program. A design foundation workshop that emphasizes the observing, documenting and inventing 3-dimensional structure, form, space, and function through the use of hand drawing techniques.

CARD 194 Image Capturing and Editing

Semester course; 5 lecture/laboratory hours. 1 credit. Successful completion of the Art Foundation Program. A design foundation workshop that emphasizes the capturing, editing and printing of digital images.

CARD 195 Graphic Representation

Semester course; 5 lecture/laboratory hours. 1 credit. A design foundation workshop that emphasizes the generating, translation and rendering of digital images.

CARD 196 Type Technology and Application

Semester course; 5 lecture/laboratory hours. 1 credit. A design foundation workshop that emphasizes the management and applications of type and fonts.

CARD 197 Output Technology and Production

Semester course; 5 lecture/laboratory hours. 1 credit. A design foundation workshop that emphasizes the use of tools, processes and techniques for print reproduction.

CARD 200 Visual Studies – Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Successful completion of the Art Foundation Program. A course in which basic visual and cognitive organizational processes for the practice of communication arts and design are presented through lectures and demonstrated through studio exercises. The course includes visual perception and organization, visual problem solving techniques, and visual ideation.

CARD 203 Visual Studies – Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Successful completion of the Art Foundation Program. A course in which an understanding of the relationship between form and communication is developed. The student will develop an awareness and appreciation for visual imagery as a tool for the transmission of information and ideas.

CARD 205 Design: Methods and Processes

Semester course; 2 lecture and 3 studio hours. 3 credits. An in-depth investigation of the theoretical aspects of the design process within the context of designing effective visual communications.

CARD 206 Anatomy for Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Required for communication arts illustration emphasis. An advanced investigation of human structure and motion as applied to illustration. In addition to assigned readings, students will execute a series of anatomical drawings.

CARD 207 Introduction to Computer Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Required course for illustration majors only. An introductory workshop in microprocessor hardware operations, software procedures and Internet communication necessary for contemporary communication arts and design practice.

CARD 208 Communication Arts Computer Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 207. Required: Communication Arts Program. An introductory course into the use of the computer and peripheral devices in the creation of raster and vector based images.

CARD 210 Communication Design Visual Fundamentals

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: Successful completion of Art Foundation Program. Required for communication design emphasis. A course in which basic visual and cognitive organizational processes for the practice of communication arts and design are presented through lectures and demonstrated through studio exercises. The course includes visual perception and organization, visual problem-solving techniques and visual ideation.

CARD 211 Typography I

Semester course; 2 lecture and 3 studio hours. 3 credits. An introduction to communication problem solving through the visual medium of language. The fundamentals of typography and typographic design are explored in experimental and practical projects.

CARD 212 Design Form and Communication

Semester course; 2 lecture and 3 studio hours or 4 lecture and 6 studio hours. 3 credits for Richmond, 6 credits for VCUQ. The relationship of form and communication in graphic design is explored through theoretical and applied projects. The impact of typography and imagery and their syntactic relations upon audience and content is stressed.

CARD 213 Intermediate Typography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 211. An intermediate exploration of typography as an expressive and functional communication vehicle. Emphasis is placed on defining effective design criteria to meet the reader's needs, the communicator's intent and the designer's formal sensibilities.

CARD 214 Imaging I: Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Successful completion of the Art Foundation Program. For sophomore students in the Communication Design Program. CARD 214 is a studio course focusing on the use of digital imaging techniques for communication purposes. The processes and techniques for making and working with digital images are explored. Cannot be taken for credit with CARD 331.

CARD 216 Imaging II: Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 214. For sophomore students in the Communication Design Program. CARD 216 is a studio course focusing on the creation of visual images for communication purposes. The processes and media for making visual images and the limits of visual literacy are explored.

CARD 224 Introduction to Illustrative Drawing

Semester course; 2 lecture and 3 studio hours. 3 credits. Required Communication Arts Program. An intermediate drawing course with emphasis on drawing methods and illustrative techniques to prepare the student for upper-level study in visual communications.

CARD 228 Type and Image

Semester course; 2 lecture and 3 studio hours. 3 credits. Required: Communication arts and digital imaging and photography emphasis areas. Intermediate course exploring the use of type and image in visual communications.

CARD 233 Media Arts Survey

Semester course; 2 lecture and 3 studio hours. 3 credits. An introduction to kinetic imagery and the principles of media aesthetics.

CARD 234 Introduction to Animation

Semester course; 2 lecture and 3 studio hours. 3 credits. Offered: Fall semester. Corequisite: CARD 239 Media Presentation. An introduction to the techniques and principles of animation as frame-by-frame sequential media, covering pre-production methods particular to animation, and a survey of historical techniques with an emphasis in viewing and responding to animated work.

CARD 235 Electronic Animation I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 208, CARD 234 and CARD 239. An introduction to various video and electronic animation techniques.

CARD 236 Introduction to Video

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 208 and CARD 239. A study of the processes and equipment necessary for producing and editing work on videotape.

CARD 237 Sound Communications

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 208 and CARD 239. The basic theory and production of media-based sound.

CARD 239 Media Presentation

Semester course; 2 lecture and 3 studio hours. 3 credits. Writing intensive; oral communication intensive. An introduction to the synthesis of word, sound and moving visual imagery for creating effective media presentations.

CARD 252 History of Visual Communications I

Semester course; 3 lecture hours. 3 credits. Required course. An investigation of contemporary visual communication concepts, media and images, and their role in contemporary society.

CARD 253 History of Visual Communications II

Semester course; 3 lecture hours. 3 credits. Required course. An historical overview of the development of visual communications as specifically defined by technological advancements and media concerns.

CARD 291 Studio Topics in Communication Arts and Design

Semester course; 3-9 studio hours. 1-3 credits. May be repeated with different topics for a maximum of nine credits. Open only to majors in the School of the Arts. Topical studio focusing on visual exploration and the creation of expressive imagery in conjunction with functional communications. See Schedule of Classes for specific topics to be offered.

CARD 300 Creative Strategies

Semester course; 2 lecture and 3 studio hours. 3 credits. A course in which alternative creative communication problem solving strategies are investigated.

CARD 302 Graphics Processes and Techniques

Semester course; 1 lecture and 3 studio hours. 2 credits. Prerequisite: CARD 211. A workshop in graphics lab equipment and materials as design tools. Emphasis is on image creation and processing.

CARD 306 Anatomy for Medical Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 206. An advanced investigation of the human organ systems. In addition to assigned readings, students will execute a series of anatomical drawings.

CARD 307 Storyboard Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 239. A workshop dealing with conceptualizing, planning and visualizing moving image and sound (video, animation, film, computer graphics) presentation.

CARD 308 Web Page Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 208 or CARD 209 or permission of instructor. A course developing the design of Web sites. Emphasis is placed on the visual design, navigation, development, communication and authoring of Web sites.

CARD 310 Communication Design: Publications

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: CARD 212. Pre- or corequisite: CARD 312. Required for communication design emphasis. An introduction to the design process and applied realization of print based publications. It considers the form and communication of the printed page from the tradition of print to the organizational principles outside that tradition through lectures, demonstrations and problem solving.

CARD 311 Communication Design: Interactive Design

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: CARD 310. Prerequisite: CARD 313 for students attending VCU School of the Arts in Qatar only. Pre- or corequisite: CARD 412. Required for communication design majors. An examination of the conceptual and technical issues involved in the design and production of interactive documents. The course addresses the possibilities and limitations of computer generated images, sound and digital video as they relate to visual communication problem solving.

CARD 312 Typography II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 211. Corequisite: CARD 310. An intermediate exploration of typography as an expressive and functional communication vehicle. Emphasis is placed on defining effective design criteria to meet the reader's needs, and the communicator's intent, and the designer's formal sensibilities.

CARD 315 Time-based Media

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Completion of the CARD sophomore program. Required of the Communication Arts and Design students at the VCU School of the Arts in Qatar. A fundamentals course that introduces the element of time as a design component and surveys the potential applications for motion in visual communication. The intent is to establish a working knowledge of software relevant to both CARD 415 Communication Design: Motion Graphics and CARD 311 Communication Design: Interactive Design. This course establishes the foundation principles for both vector and raster time-based software.

CARD 321 Illustration Media and Techniques I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 224. Required: Communication Arts Program illustration emphasis. An advanced course exploring various traditional wet media techniques in depicting representational form in illustration.

CARD 322 Illustration Media and Techniques II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 321. This course is an elective for communication arts emphasis. A course exploring various mixed media techniques, including both two- and three-dimensional approaches to illustrative problems.

CARD 323 Figure in Illustration I

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: CARD 206 and CARD 224. Required for illustration emphasis. An introduction to the visual representation of the human form as it applies to illustration.

CARD 324 Figure in Illustration II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 323. Required: Communication Arts Program illustration emphasis. An advanced course investigating visually expressive modification of the human form as it applies to illustration.

CARD 325 Color Theory and Practice

Semester course; 2 lecture and 3 studio hours. 3 credits. Required for illustration emphasis and completion of Art Foundation Program. An intermediate course in the application of color theory to specific illustrative problems. A number of color theories, both historical and contemporary, will be studied and applied. This course is an elective for communication arts emphasis.

CARD 326 Editorial Illustration I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 206. Required for illustration emphasis. This course is an elective for communication arts emphasis. A required course in black and white line art, developing students' skills in interpreting an author's manuscript. Various line techniques will be explored for newspaper and magazine reproduction. Oral presentations by the students are required.

CARD 327 Digital Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 224 and CARD 208. Required for digital imaging emphasis. An intermediate course exploring the use of the computer and peripheral devices in the creation of raster and vector based drawing. This course is an elective for other communication arts emphasis.

CARD 328 Scientific Illustration I

Semester course; 2 lecture and 3 studio hours. 3 credits. Corequisite: CARD 321. An introductory course in the development of accurate representational imagery for recording scientific observations and ideas.

CARD 329 Scientific Illustration II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 328. An advanced course in the development and creation of accurate documentation and representation of scientific information and imagery including plant taxonomy, insect morphology, and physiological and pathological processes.

CARD 330/IDES 330/FASH 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

CARD 331 Digital Imaging in Visual Communication

Semester courses; 2 lecture and 3 studio hours. 3 credits. Prerequisites: Completion of CARD sophomore program. Required for communication arts/digital imaging emphasis; elective for communication design and communication arts/kinetic imaging and illustration emphasis. A studio course focusing on the use of digital imaging techniques for communication purposes. The processes and techniques for making and working with digital images are explored.

CARD 336 Video I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 201. Required for communication arts, kinetic imaging emphasis. A comprehensive course in video communication nonnarrative strategies and documentary formats.

CARD 338 Computer Graphics II: 3-D Modeling

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 208 or permission of instructor. An introduction into the use of the computer as a tool for modeling and rendering 3-D objects.

CARD 341 Art Direction I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 211 and 228. An introduction to the integrated activities of strategy, conceptual development and design. This course is an elective for communication design emphasis.

CARD 342 Art Direction II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 341. Concept, layout and design of a corporate advertising campaign based on the evaluation of research, market analysis and planning. This course is an elective for communication design emphasis.

CARD 343 Advertising Concepts I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 212. A course focusing on creative thinking and the development of concepts and ideas in problems of art direction. This course is an elective for communication design emphasis.

CARD 351 Origins of Visual Communications

Semester course; 3 lecture hours. 3 credits. A history of visual communications and design from prehistoric times to the 20th century.

CARD 352 Print Mediums

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing in the department. An overview of print production processes and techniques including electronic make-up, printing processes and production control and their relative merits as delivery mechanisms.

CARD 353 Electronic Mediums

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing in the department. An overview of electronic production processes and techniques, video and audio preproduction, production, editing and postproduction, estimating and production control.

CARD 354 Theoretical and Philosophical Aspects of Contemporary Communication Arts and Design

Semester course; 3 lecture hours. 3 credits. A study of current theoretical and philosophical issues having an impact on the understanding of communication arts and design.

CARD 356 Studio Management

Semester course; 3 lecture hours. 3 credits. A study of business and management factors that relate to creative design. Topics include marketing, structure and organization; financial factors; ethical and legal aspects; and management of design, illustration and photography studios.

CARD 357 Critical Issues in Media

Semester course; 3 lecture hours. 3 credits. Topics, theory and genre affecting media and time-based mediums are explored through critical discourse, readings, screenings and lectures.

CARD 370/FASH 370/IDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Writing intensive.

CARD 391 Topics in Design

Semester course; variable; 1-3 credits per semester. May be repeated for a maximum of nine credits. Topical lectures in design issues and visual communications.

CARD 392 Research/Individual Study

Semester course; 1-2 lecture and 3-6 studio hours. 2-4 credits. May be repeated for credit. The structuring, research, execution and presentation of an independent project in visual communications under the direction of a faculty adviser. The student will be encouraged to become a self-generating problem seeker and solver with the ability to carry out self-stated goals.

CARD 403 Senior Studio – Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Senior status in the Communication Arts track. To be taken in the last semester of the student's senior year. Critical analysis and development of the student's exit portfolio with emphasis on refining and strengthening focus of the visual style and concept inherent in the body of work.

CARD 407 Senior Portfolio

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: Senior status. Communication design track in the Department of Communication Arts and Design. A course oriented toward the creation of a professional portfolio and resume.

CARD 408 Multimedia Communication Systems

Semester course; 1 lecture and 3 studio hours. 2 credits. Prerequisite: CARD 207 or CARD 309 or permission of instructor. Corequisite: CARD 437. A technical workshop that explores hardware, software and interconnectivity as it relates to the creation of complex multimedia communication/information delivery systems.

CARD 409 Video Editing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 336. An advanced study focusing on the operational skills necessary for working with advanced video postproduction equipment. This course is a studio elective for communication arts emphasis.

CARD 410 Communications Design: Systems in Design

Semester course; 4 lecture and 6 studio hours. 6 credits. Pre- or corequisite: CARD 312. The study of systematic and methodological approaches to communication design through the solving of complex problems in visual communication. Emphasis is placed on objective process and research in approaches to various professional situations.

CARD 411 Communication Design: Design Studio

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisite: CARD 410. A course in which project situations of professional visual communication offices are approached in an educational context. Problems, which represent current visual communication problems, are presented.

CARD 412 Typography III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 310 and 312. Required: Communication Design Program. Advanced problems in typographic design with emphasis upon the development of a personal creative approach to form and communication. Writing intensive.

CARD 413 Package Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 311 and 312. Theoretical and studio investigation of three-dimensional structural principals as they relate to the area of packaging, exhibition and environmental design.

CARD 414 Exhibition and Environmental Graphic Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 310 and 312. Seniors have preference. Study of the presentation of information in large-scale, three-dimensional formats. Exploration of exhibition and environmental design, including developing imagery and typography, understanding the use of "wayfinding" (identification, interpretation and orientation) and human factors, communicating of programmed content.

CARD 415 Communication Design: Motion Graphics

Semester course; 4 lecture and 6 studio hours. 6 credits. Prerequisites: CARD 310 and CARD 315. Required for Communication Arts and Design students at the VCU School of the Arts in Qatar. An exploration of time and motion as it applies to visual communication in non-interactive linear narratives. Examines the basic principles of broadcast and film and covers the integration of motion graphics within these formats.

CARD 416 Motivational Graphics

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 310 and 312. Study in the development of visual communication performance criteria and practical strategies that influence audience attitudes and behavior.

CARD 417 Interdisciplinary Team Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 310 and 312. Advanced projects in visual communication in which student design teams solve complex problems requiring collaboration.

CARD 418 Design Center: Print Media

Semester course; 2 lecture and 3 studio hours. 3 credits. Course may be repeated for credit. Prerequisites: CARD 310 and 312, and portfolio review by faculty. A professional studio to give students practical experience working with faculty on design projects for the university and nonprofit community organizations.

CARD 419 Electronic Imaging

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 311, CARD 321 or CARD 338. An advanced exploration into the use of the computer and other electronic peripheral devices in the creation of expressive imagery and functional communications.

CARD 420 Book Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 322 and CARD 324. This course is an elective for communication arts emphasis. An advanced course exploring illustration for the book publishing market.

CARD 421 Illustration for Business**Communications**

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 322 and 323. Required for illustration emphasis. An advanced course developing illustrations appropriate for business communications.

CARD 422 Design Center: Internet Media

Semester course; 2 lecture and 3 studio hours. 3 credits. Course may be repeated for a total of six credits. Prerequisites: CARD 308, 311 and 412, and portfolio review by faculty. A professional studio to give students practical experience working under faculty guidance on design projects for university clients and nonprofit community organizations.

CARD 423 Editorial Illustration II

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisites: CARD 321 and 311. An advanced course developing the student's skill in interpreting an author's manuscript. The major emphasis is given to illustrations appearing in books and magazines.

CARD 424 Visual Journalism in Illustration

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 321 and 323. Required for illustration emphasis. Writing intensive. An advanced course developing the student's skill in commenting upon contemporary issues and themes independently of existing manuscripts. This is a team taught course with teaching responsibilities shared by faculty with expertise in illustration and faculty with expertise in journalism. Studio elective for communication arts emphasis.

CARD 425 Experimental Illustration

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: CARD 321. An advanced course encouraging the student to discover unusual techniques and to develop innovative solutions. The course stresses experimentation with novel media and surfaces.

CARD 426 Editorial Illustration II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 326. This course is an elective for communication arts emphasis. An advanced course developing students' skills in interpreting an author's manuscript. The major emphasis is given to color illustrations appearing in magazines and newspapers.

CARD 427 Imagery for Children

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: CARD 322 and CARD 324. An advanced course developing both fiction and nonfiction illustrations intended for the preschool and elementary school children's publishing market. Elective for communication arts emphasis.

CARD 434 Electronic Animation II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 334. Students will work with advanced techniques and have the opportunity to design and produce their own projects. Studio elective for communication arts emphasis.

CARD 436 Video II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 336. Required for communication arts, program kinetic imaging emphasis. A comprehensive course in video communication exploring narrative strategies and form-content relationships.

CARD 438 Computer Graphics III: 3-D Animation

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 338. Advance study of computer modeling and the introduction of 3-D animation.

CARD 439 Video III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 436. An advanced course focusing on short subject pieces in video. Fictional and experimental narrative works will be investigated. This course is an elective.

CARD 441 Art Direction III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 342. An advanced exploration of art direction based on positioning of the corporation that carries over several different channels of communication.

CARD 442 Art Direction IV

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 342. An advanced course in art direction including the development of integrated business advertising plans.

CARD 443 Advertising Concepts II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 343. An advanced course in art direction focusing on the successful integration of strategy and creativity.

CARD 444 Art Direction for Nonprofit Organizations

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 342. Advanced concept, layout, and design under the delimitations of precise environmental or social agendas and limited budgets.

CARD 445 Problem Seeking

Semester course; 3 lecture hours. 3 credits. A seminar exploring the nature, scope and implications of defining design objectives in terms of limitations, requirements and potentials of a product's implementation, performance and life cycle.

CARD 451 Management Aspects of Art Direction

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing in the department. An in-depth analysis of agency management, operations and the function of art direction.

CARD 464 Electronic Animation III

Semester course; 2 lecture and 3 studio hours. 3 credits. Offered: Fall semester. Prerequisites: CARD 234, CARD 334 and CARD 434. An advanced course in animation studies, which allows the student to choose from a variety of techniques and topics to create a senior project based on a clear understanding of frame-by-frame media. Critical and theoretical studies will be included as a reading and writing component of this course.

CARD 491 Studio Topics in Communication Arts and Design

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for credit. Topical studio focusing on research and experimentation in specialized visual communication media.

CARD 492 Communication Arts and Design Internship

Semester course; 1-3 credits. May be repeated to a maximum of three credits. Prerequisites: Completion of junior year and 3.0 GPA in major. Permission of internship coordinator required. Communication arts and design majors only. Supervised pragmatic work experiences. Training is provided under the direction and supervision of qualified professional practitioners.

CARD 567 Visual Interface Design

Semester course; 3 lecture and 3 studio hours. 4 credits. Prerequisite: Permission of instructor. A course concentrating on the visual design and development of human-computer interface systems. Emphasis is placed on visual design processes and methods in the diverse arena of user interface design.

Department of Crafts

Howard Risatti

Professor of Art History and Acting Department Chair (1980)
 B.M. Roosevelt University
 M.M. Roosevelt University
 M.A. University of Illinois
 Ph.D. 1978 University of Illinois

The Department of Crafts offers a professionally oriented program that leads to a Bachelor of Fine Arts degree in ceramics, fiberwork/fabric design, glassworking, metal-smithing/jewelry or woodworking/furniture design. Within these areas of specialization, courses are designed to assist students in developing concepts, personal directions, and the necessary skills and technical competencies to enable them to pursue a professional career or graduate study. In addition to the major area of study, students have the opportunity for a diverse education in the liberal arts and humanities. Students are encouraged to select courses in other schools on the Academic Campus that will add to their general knowledge. A student may elect a minor area of study in any department or program offering a minor. The minor can be used to fulfill career objectives or to investigate a discipline of secondary interest.

Career opportunities for craft majors include setting up an independent studio or gallery, restoration or repair work, teaching or participating in the Artist-in-Residence programs in the public schools, and consulting and designing for industry.

Degree requirements in crafts

The Bachelor of Fine Arts in Crafts requires a minimum of 123 credits, including 47 in the major. A minimum of 45 of the 123 credits must be 300- and/or 400-level courses. To enroll in an advanced-level craft course, majors must have earned a "C" or better in all courses prerequisite for that course.

Studios		credits
Foundation program		14
Basic craft		16
Orientation to craft		1
Advanced craft		28
Painting/printmaking or sculpture		8
General studies		
ENGL 101, 200 Writing and Rhetoric		
Workshop I, II		6
Literature		6
Art history		15
To include three credits in a non-Western topic		
Approved electives		13
To include three credits in social sciences, three credits in mathematics* and four credits in laboratory science		
Senior seminar		2
Open electives		14
		123

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school Algebra II or Geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Minor in crafts

Successful completion of the Art Foundation Program is a prerequisite for the minor concentration which consists of a minimum of 18 credits in craft courses. Of these 18, a minimum of nine credits must be in upper-level courses.

Courses in crafts (CRAF)

CRAF 201-202 Metalsmithing

Continuous course; 2 lecture and 6 studio hours. 4-4 credits. Investigation of metal forming processes such as forging, raising and construction. Research in contemporary and historical metal forms.

CRAF 211-212 Jewelry

Continuous course; 2 lecture and 6 studio hours. 4-4 credits. Investigation of jewelry making processes such as construction, repousse/chasing, surface embellishment, stone setting and casting. Research in contemporary and historical jewelry forms.

CRAF 221 Woodworking Techniques

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits with permission of department chair. Introduction to techniques of woodworking. Includes the use of hand tools; hand and machine joinery; shaping and carving; finishing; and techniques involving jigs and fixtures. Students participate in studio work.

CRAF 241 Ceramics: Handbuilding

Semester course; 2 lecture and 6 studio hours. 4 credits. Basic construction techniques for fabricating ceramic objects. Includes mold-making, slip casting and press-molding as well as the use and application of low-fire slips, underglazes, glazes and the firing of these objects in kilns.

CRAF 242 Ceramics: Wheelthrowing

Semester course; 2 lecture and 6 studio hours. 4 credits. Introduction to the use of the potter's wheel. The objective is to develop the skill, dexterity and coordination required to use the wheel as one tool of the ceramic forming process. Includes the properties and uses of high-fire clays and glazes. Students participate in kiln firings.

CRAF 251, 252 Introduction to Glassworking

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An investigation of techniques, tools, equipment, materials involved in hot and cold glassworking processes. First semester covers basic molten-glass furnace techniques such as blowing and casting, mold-making and Pate de Verre (fusing crushed glass in a mold). Second semester explores colored glass fusing, use of enamels and glazes, mold-making for slumped forms and stained glass.

CRAF 261, 262 Beginning Textiles

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An introduction to basic textile techniques, tools and materials. CRAF 261 introduces tapestry, feltmaking, basketry and related techniques. CRAF 262 focuses on embroidery, silk painting, piecing and quilting, and related techniques. The history and modern application of each technique will be examined through lectures, demonstrations and studio work.

CRAF 282 Orientation to Crafts

Semester course; 1 lecture hour. 1 credit. Discussion of a variety of approaches to study within the craft media, stressing elements of creative activity, which are basic to any involvement in making visually-oriented objects.

CRAF 301, 302/401, 402 Advanced Metalsmithing or Jewelry

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. 401 and 402 may be repeated up to a maximum of 12 credits. Prerequisites: CRAF 201-202 or 211-212. This course offers opportunity for specialization and development of techniques.

CRAF 320 Furniture Design

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: CRAF 221. The course explores the development of ideas through drawings, mock-ups and the planning and execution of a small furniture object utilizing basic and specialized woodworking techniques.

CRAF 321, 322/421, 422 Advanced Woodworking and Furniture Design

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. 421 and 422 may be repeated for up to a maximum of 12 credits. Prerequisites: CRAF 221 and 320. Advanced design and construction investigation of varied materials and machine processes.

CRAF 341, 342/441, 442 Advanced Ceramics

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. 441 and 442 may be repeated for up to a maximum of 12 credits. Prerequisites: CRAF 241 and 242 are the prerequisites for CRAF 341 and 342.

CRAF 341 and 342 are the prerequisites for 441 and 442. Advanced problems in the design and production of functional and nonfunctional ceramic products.

CRAF 351, 352/451, 452 Glassworking

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. 451 and 452 may be repeated for up to a maximum of 12 credits. Prerequisites: CRAF 251 and 252. Opportunity for further investigation and specialization in glassworking design and technical mastery.

CRAF 361 Intermediate Textiles: Tapestry/Weaving

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Prerequisites: CRAF 261 and 262, or permission of instructor. An introduction to the floor loom with an emphasis on tapestry weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 362 Intermediate Textiles: Pattern Weaving

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits. Prerequisites: CRAF 261 and 262, or permission of instructor. An introduction to the floor loom with an emphasis on pattern weaving. Concentrated studio work in contemporary and traditional loom techniques along with continuing individual investigation of other textile techniques.

CRAF 363, 364 Fabric Design I and II

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Exploration of pattern as a design concept and the development of technical skills for dye application on fabric. CRAF 363 emphasizes silk painting.

CRAF 367, 368 Tapestry

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Origins of tapestry forms and execution of techniques.

CRAF 369 Ancient Peruvian Textile Techniques

Semester course; 2 lecture and 6 or 12 studio hours. 4 credits. An examination of textile techniques perfected in ancient Peru and their application to contemporary fiber work. Pre-Columbian cultures will be studied to understand textile development. Course includes student duplication of techniques to better understand "structure" and the production of a personal object(s) utilizing these techniques and information.

CRAF 382 Intermediate Crafts Seminar

Semester course; 1 lecture hour. 1 credit. This course will explore contemporary developments in the field of crafts. The course will utilize essays, periodical articles and exhibition catalogues as a catalyst for discussions involving issues such as tradition and innovation, process and materiality, functionality, decoration, containment, metaphor, figuration and installation.

CRAF 409 Summer Metal and Jewelry Workshop

Semester course; 3, 6, 9 studio hours. Variable; 1, 2, 3 credits. May be repeated for credit. Prerequisite: Permission of instructor. Exploration of specific metal processes and techniques such as fabrication, forging, forming, casting, enameling and electroforming. See the Schedule of Classes for specific course offerings.

CRAF 429 Summer Woodworking Workshop

Semester course; 3, 6, 9 studio hours. Variable; 1, 2, 3 credits. May be repeated for credit. Prerequisite: Permission of instructor. Exploration of specific woodworking processes and techniques such as joinery methods, laminate bending, steambending, etc. See the Schedule of Classes for specific course offerings.

CRAF 445 Technological Developments in Ceramics

Semester course; 3 lecture hours. 3 credits. An examination of significant developments in the design and technology of ceramics from the prehistoric period to the present. The historical outline will include ceramics of Europe, the Orient and the Americas. Illustrated lectures.

CRAF 446 Glaze Technology

Semester course; 3 lecture hours. 3 credits. Development, formulation and application of ceramic glazes. The technology includes high, medium and low firing ranges as well as color and analysis of glaze materials.

CRAF 447 Ceramic Technology: Clay, Claybodies and Slips

Semester course; 3 lecture hours. 3 credits. Study of clay from geological origins to practical application. Course includes development and application of clay bodies in different firing ranges, englobes and slips.

CRAF 448, 449/548, 549 Ceramic Workshop

Semester courses; 9 studio hours. 3, 3 credits. Exploration in specific ceramic techniques such as raku, salt glaze, primitive firing and low temperature glazing.

CRAF 455, 456 Survey of Glass

Semester courses; 3 lecture hours. 3, 3 credits. An examination of significant technological developments in glass from the past to present. First semester: ancient to 16th century. Second semester: 17th century to contemporary. Illustrated lectures.

CRAF 459 Summer Glassworking Workshop

Semester course; 3, 6, 9 studio hours. Variable; 1, 2, 3 credits. May be repeated for credit. Prerequisite: Permission of instructor. Exploration of specific glassworking processes, such as forming molten glass, casting and coldworking techniques. See the Schedule of Classes for specific course offerings.

CRAF 461, 462 Advanced Textile Studio

Semester courses; 2 lecture and 6 or 12 studio hours. 4 or 6 credits for each course. Each course may be repeated for a maximum of 12 credits. Prerequisites: CRAF 361 and 362, or permission of instructor. Emphasis on investigation of advanced technical skills along with development of a personal style.

CRAF 463, 464 Advanced Fabric Design

Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. Prerequisites: CRAF 363 and 364, or permission of instructor. Development of a personal direction with advance examination of dye applications.

CRAF 469 Summer Textile Workshop

Semester course; 3, 6, 9 studio hours. Variable; 1, 2, 3 credits. May be repeated for credit. Prerequisite: Permission of instructor. Exploration of specific textile

techniques and processes, such as multiharness weaving, pulled warp, special dye processes and designing for printed fabrics. See the Schedule of Classes for specific course offerings.

CRAF 482 Senior Seminar

Semester course; 2 lecture hours. 2 credits. Resume and portfolio preparation, promotion of creative work and selling, exhibition opportunities and process, career options, setting up a studio and other subjects appropriate to the artist/craftsperson. Writing intensive.

CRAF 491 Topics in Crafts

Semester course; 1-3 credits. May be repeated for a maximum of nine credits. Prerequisite: Permission of instructor. A seminar or workshop on a selected issue or topic in the field of crafts. See the Schedule of Classes for specific topic(s) to be offered each semester.

CRAF 492 Independent Study

Semester course; 1-3 credits. May be repeated for a maximum of six credits. Prerequisites: Senior standing in the major and permission of the instructor. The student will pursue advanced, individually directed study on a subject to be formulated in writing by the student and instructor.

CRAF 493, 494 Fieldwork

Semester courses; 270 clock hours. 6, 6 credits. Prerequisites: Senior standing in the major and permission of chair. Opportunity for practical work experiences. Senior students are placed in professional organizations that offer supervised work or research experience appropriate to their major interests. Participation requires the approval of both the department chair and field supervisor. Students must work 270 clock hours and maintain a daily log of their experiences. Field supervisor will plan student's work and evaluate performance.

Department of Dance and Choreography

Martha Curtis

Associate Professor and Department Chair (1988)
B.F.A. 1976 North Carolina School of the Arts

The mission of the Department of Dance and Choreography is to create an environment where the student experiences the demands and challenges of the professional dancer/choreographer. In a community setting where communication, mutual respect and self-motivation are encouraged, classes provide students with disciplined training that will maximize their potential to become dancers of technical excellence, choreographers with original and powerful voices, and thinkers with high academic standards.

Students are trained to be performers, choreographers and teachers in this curriculum, which emphasizes modern dance and offers dance courses in modern, improvisation, composition, choreography, music for

dancers and dance history, as well as ballet, jazz, tap, African-Caribbean, ballroom, contact improvisation, t'ai chi, kinesiology, video/choreography, lighting design and dancer as teacher. Additionally, the program provides a variety of experiences in performance, choreography and production. These offerings enable students to develop as sensitive, expressive artists with professional training in dance technique, a knowledge of dance philosophies and a foundation in history, enabling them to function as independent and creative artists in the field of dance.

Degree requirements in dance and choreography

	credits
Dance technique	
Modern	24
Ballet	12
Technique Electives Group A	4
Contact improvisation, ballroom, t'ai chi or topics courses approved for Group A	
Students must take two different courses.	
Technique Electives Group B	2
Jazz, tap, African-Caribbean or topics courses approved for Group B	
Dance workshop	8
Improvisation	4
Dance composition	6
Repertory	3
Music for dancers	3
Music appreciation	3
Dancer as teacher	3
Dance production workshop	2
Choreography performance	6
Senior project	3
Dance history and theory	
DANC 103 Survey of Dance History (Part I)	3
DANC 104 Survey of Dance History (Part II)	3
DANC 313 Dance in World Cultures or DANC 491 Topics: African American Presence	3
General studies*	
English 101, 200 Writing and Rhetoric Workshop I, II	6
Science and technology	4
DANC 317 Anatomy for the Dancer	
DANC 318 Dance Science	
ARTH 103 or 104 Survey of Western Art	3
Social/behavioral sciences elective	3
Math elective**	3
Ethics elective	3
Open electives***	12
Recommended dance electives:	
Video/choreography workshop	
Rehearsal and performance	
Topics courses	
Students also may enroll in non-dance electives.	

* Students must include one writing intensive course (WI) as part of their general education electives.

** In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

*** Topics courses are designed each year to reflect current dance trends and to provide students with an up-to-date and diverse curriculum. Recent topics courses include Group A: Somatics, yoga and Hawaiian dance; Group B: Hip hop. Open electives: Dance management and Design for dancers. All dance majors must complete modern technique level DANC 402 to be eligible for graduation with a B.F.A. in Dance and Choreography. Exceptions are made only when the student demonstrates outstanding work in the creative track. Exceptions must be approved by the chair, in consultation with the full-time faculty.

The Bachelor of Fine Arts degree program in dance/choreography requires 126 credits, with 88 of those credits as the core curriculum. Dance majors are encouraged to take two technique classes daily, including the required modern technique class. The continuous study of ballet is a strong component of the curriculum, and dance majors are required to take 12 credits in ballet. Beyond the first level of technique, students progress to the higher levels through audition or with permission of the instructor. Upper levels of technique are repeatable for credit. Within the core are opportunities for independent study, including a possible semester spent in an intensive investigation of a dance-related subject in the field.

The VCU dance program provides opportunities for students to interact with faculty and guest artist mentors in classes, advising sessions, concerts and creative projects. Formal evaluation procedures include a career evaluation during the second semester of the freshman year and a sophomore re-admittance audition at the end of the sophomore year. The purpose of these evaluations is to assess each student's progress in relationship to the standards of the program. Dance majors must pass the sophomore re-admittance audition in order to enroll in the upper-level creative track curriculum (DANC 303-304, 490). The sophomore re-

admittance audition stands on its own as a separate evaluation from course grades.

Before graduation, students must complete a senior project, which is a practical presentation in both performance and choreography. Senior projects are approved by the chair in consultation with the full-time faculty. Approval is based on the quality of a proposal written by the student and an assessment of the student's overall academic record.

Within the School of the Arts, dance students have frequent opportunities to work collaboratively with other students in the arts. Possibilities include the visual arts, participation in multimedia events and productions outside the dance department. Any dance major can perform in numerous formal concerts, informal showings and lecture-demonstrations produced by the department. Opportunities also are available for training in teaching, but students interested in earning state certification should consult their advisers.

An audition is required for acceptance into the dance program. Applicants for the Bachelor of Fine Arts in dance/choreography will follow the admissions guidelines for arts students as described in the earlier portion of this section of the bulletin.

Minor in dance

A VCU student can declare a minor in dance after completing eight credits in dance and upon approval of the department. The minor consists of 27 credits.

	credits
Dance Technique	14
A combination of modern, tap, ballet, t'ai chi, jazz, contact improvisation and African Caribbean	
DANC 105-106 Improvisation	4
DANC 205 Composition	3
DANC 206 or Video/Choreography	3
Dance History (DANC 103, 104 or 313)	3
	27

Courses in dance and choreography (DANC)

DANC 101-102 Modern Dance Technique I
Continuous course; 1 lecture and 2 studio hours. 2-2 credits. Prerequisite: Dance major or permission of chair. Corequisite: DANZ 101L-102L. Beginning study and training in principles of modern dance technique. Emphasis is on body alignment, spatial patterning, flexibility, strength and kinesthetic awareness.

DANZ 101L-102L Modern Dance Technique I Laboratory

Continuous course; 3 studio hours. 1-1 credit. Required of dance majors, concurrent with DANC 101-102. An extension of DANC 101-102.

DANC 103-104 Survey of Dance History

Continuous course; 3 lecture hours. 3-3 credits. First semester: Dance from ritual to the contemporary ballet and the foundations of the Western aesthetic as it relates to dance, and the development of the ballet. Second semester: Western concert dance from the aesthetic dance of the late 1800s to contemporary modern dance. These courses are the first two of a three-course sequence that fulfills one of the general education writing intensive requirements for dance majors.

DANC 105-106 Improvisation

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. An exploration of spontaneous body movement with the purpose of increasing body awareness, movement invention and movement creativity.

DANC 109, 110/209, 210/309, 310/409, 410 Dance Workshop

Semester courses; 2 studio hours. 1 credit. Prerequisite: Dance major or permission of instructor. Group exploration of techniques related to all areas of dance.

DANC 111-112 Ballet Technique I

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. Beginning study of the principles of ballet technique. Emphasis upon vocabulary terms, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the ballet style.

DANC 113 Ballet Technique I

Semester course; 1 lecture and 2 studio hours. 2 credits. This course may be repeated for a maximum of four credits on the recommendation of the chair. Prerequisites: DANC 111-112, or permission of instructor. A continuation of study of ballet technique at the beginning-level. Emphasis upon a stronger, more exact performance of the basic ballet steps, focusing on correct alignment, development of the body, and rhythmic and kinesthetic awareness.

DANC 114, 214, 314, 414 Summer Dance Workshop

Semester courses; variable; 1, 3 credits per semester. May be repeated for credit. Flexible course offerings in dance technique, improvisation, composition, rhythmic training and repertory. See the Schedule of Classes for specific course offerings.

DANC 121, 122/AFAM 121, 122 Tap Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Beginning study and training in the principles of tap technique with emphasis upon style, body alignment, spatial patterning, flexibility, strength and kinesthetic awareness to move the body in the style required for tap dancing.

DANC 126, 127/AFAM 126, 127 African-Caribbean Dance I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Dance based on the movements and rhythms of Africa and the Caribbean.

DANC 141, 142 Ballroom Dancing

Semester courses; 2 studio hours. 1, 1 credit. A study of basic ballroom dance steps and practice in their performance.

DANC 151, 152/AFAM 151, 152 Jazz Dance Technique I

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: DANC 102 or permission of instructor. Study and training in the principles and concepts of jazz technique. Emphasis on body alignment, flexibility, balance, rhythmic awareness and mastery of isolated movements of body parts. The course includes the exploration of the relationship between jazz music and jazz dance.

DANC 161, 162/261, 262/361, 362/461, 462 Rehearsal and Performance

Semester courses; hours to be arranged. 1 to 3 credits. Prerequisite: Permission of instructor. Open to nonmajors. Each student is expected to devote a minimum of 50 hours per credit per semester to receive credit. Dance rehearsals and production of work for a major dance concert. Selected sections offered for pass/fail.

DANC 171, 172 T'ai Chi

Semester courses; 1 lecture and 2 studio hours. 2 credits. Study and practice of T'ai Chi, a Chinese exercise form, which is designed to bring one to full potential through balancing, aligning and breathing exercises. The short Yang form, based on Taoist principles, strengthens the body while allowing for deep relaxation to take place. Application of T'ai Chi to creative dance techniques is explored as a springboard for improvisation.

DANC 183, 184 Introduction to Modern Dance Technique

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. For non-dance majors. Experiential introduction to basic movement principles, body alignment and the elements of modern dance.

DANC 201-202 Modern Dance Technique II

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of eight credits on the recommendation of the chair. Prerequisite: DANC 102 or permission of instructor. Corequisites: DANZ 201L, 202L. Further study and training in the principles of modern dance technique on a low intermediate-level with the expectation of better coordination of all elements into a sense of dance.

DANZ 201L-202L Modern Dance Technique II Laboratory

Continuous course; 3 studio hours. 1-1 credit. This course may be repeated for a maximum of four credits on the recommendation of the chair. Prerequisites: DANC 102 and DANZ 102L, or permission of instructor. Corequisites: DANC 201-202. An extension of DANC 201-202.

DANC 205-206 Composition

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: DANC 105-106 Improvisation and MHIS 243 Music Appreciation, or permission of instructor. An introduction to the basic elements of choreography.

DANC 211-212 Ballet Technique II

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 8 credits on the recommendation of the chair. Prerequisite: DANC 112 or permission of instructor. Further training and practice in ballet technique. Emphasis upon a stronger, more exact performance of the ballet steps, focusing still on correct alignment, development of the body and kinesthetic awareness.

DANC 221, 222 Tap Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisite: Audition or permission of instructor. Further study and training in the principles of tap technique.

DANC 232 Music for Dancers

Semester course; 3 lecture hours. 3 credits. Prerequisites: MHIS 243 and DANC 101, or permission of instructor. An examination of the various traditional and nontraditional concepts which the dancer uses in collaboration with music. Course includes lecture, reading, listening and movement assignments. Focus will be on the dancer's intelligent and justifiable choice of music through movement analysis.

DANC 243 Dynamic Alignment

Semester course; 1 lecture and 2 studio hours. 2 credits. Study of the basic principles of mechanical balance and postural alignment. Practice in the application of the major theories of alignment and techniques of realignment. Corrective exercises, breathing techniques, relaxation, guided imagery, self-awareness exercises and body image work will be learned and practiced.

DANC 251, 252 Jazz Technique II

Semester courses; 1 lecture and 2 studio hours. 2, 2 credits. Prerequisites: DANC 151, 152, or permission of instructor. An in-depth study of movement styles and qualities in jazz dance. Advanced work on integrating music and movement with focus upon chronology of jazz music and corresponding dance forms.

DANC 260 Dance Production Workshop

Semester course; 2 lecture hours. 2 credits. Prerequisite: Dance major or permission of instructor. An introduction to the basic principles of dance lighting and technical theatre through lecture, practical demonstration and discussion.

DANC 291 Topics in Dance

Semester course; 1-4 credits. May be repeated for a maximum of eight credits. Prerequisite: Permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topic(s) to be offered each semester.

DANC 301-302 Modern Dance Technique III

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of eight credits on the recommendation of the chair. Prerequisite: DANC 202 or permission of instructor. Corequisites: DANZ 301L-302L. High intermediate study and training in principles of modern dance technique. Movement studies demanding greater strength and flexibility. Spatial patterns demanding increased coordination, kinesthetic awareness and aesthetic sensitivity.

DANZ 301L-302L Modern Dance Technique III Laboratory

Continuous course; 3 studio hours. 1-1 credit. This course may be repeated for a maximum of four credits on the recommendation of the chair. Prerequisites: DANC 202 and DANZ 202L or permission of the instructor. Corequisites: DANC 301-302. An extension of DANC 301-302.

DANC 303-304 Choreography/Performance

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: DANC 205-206 Composition and DANC 232 Music for Dancers or permission of instructor. Dance majors must pass the sophomore re-admittance audition prior to enrolling in this class. The

craft of choreography and performing techniques are explored extensively as students develop solo and group pieces while rotating in the roles of choreographer/director and performer.

DANC 311-312 Ballet Technique III

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. This course may be repeated for a maximum of 12 credits on the recommendation of the chair. Prerequisite: DANC 212 or permission of instructor. Continued development in the skills and aesthetics of ballet.

DANC 313 Dance in World Cultures

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisites: ENGL 200; dance majors also must take DANC 103-104 or permission of instructor. This course is the third in a sequence that fulfills one of the general education writing intensive requirements for dance majors. Students learn and participate in dance styles of various world cultures as they study cultural traditions and how they are expressed in movement. No dance experience necessary. This course will include lectures, readings, research and discussion. Students will engage in the viewing and discussion of films, videos and dance concerts.

DANC 315, 316 Contact Improvisation

Semester courses; 1 lecture and 2 studio hours. 2 credits. Prerequisites: DANC 101, 102, or permission of instructor. Exploration of the technique of partnering and the exchange of weight in an improvisational format. Emphasis is on a shared process that explores gravity, lifting, and the give and take of body weight.

DANC 317 Anatomy for the Dancer

Semester course; 2 laboratory hours. 1 credit. A web based, self-study course designed for dance students. Integrates the study of anatomy with dance terminology, skills and concepts. Covers basic knowledge of skeletal, muscular and nervous systems of the body and applies this information to principles important to dance.

DANC 318 Dance Science

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: DANC 317. A team-taught lecture and laboratory course that applies anatomical and basic kinesiological concepts to dance technique. Students will analyze and assess dance movement using scientific principles as well as study the interplay between the aesthetic qualities and biomechanics of dance technique, and the role of this study in injury prevention.

DANC 319, 320 Video/Choreography Workshop

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisites: Experience in movement, performance and/or video/film, or permission of instructor. Students gain practical skills as well as basic theoretical foundation in the principles of working with video and choreography.

DANC 343 Body Imagery

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: Permission of instructor. The study of body/mind imagery as a source of exploration that includes movement qualities, dynamics and vocabularies. Students gain insight into their inner resources as a base for outer expression.

DANC 371, 372 Repertory

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisites: DANC 101-102, and permission of instructor. Study and rehearsal of roles in choreography produced by the faculty and/or guest artists, with the objective of achieving a performance level.

DANC 401-402 Modern Dance Technique IV

Continuous course; 1 lecture and 2 studio hours. 2-2 credits. Prerequisite: DANC 302 or permission of instructor. Corequisites: DANZ 401L-402L. Advanced study and training in modern dance technique. This course may be repeated for a maximum of 12 credits on the recommendation of the department chair.

DANZ 401L-402L Modern Dance Technique IV

Laboratory

Continuous course; 3 studio hours. 1-1 credit. This course may be repeated for a maximum of four credits on the recommendation of the department chair. Prerequisites: DANC 302 and DANZ 302L, or permission of the instructor. Corequisites: DANC 401-402. An extension of DANC 401-402.

DANC 407 The Dancer as Teacher

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: Permission of instructor. The student learns to analyze and communicate movement in a variety of teaching situations. The student will have an opportunity to observe different teaching techniques and to practically apply learned teaching concepts and theories.

DANC 450 Professional Project

Semester course; 3-9 credits. May be repeated for a maximum of 12 credits. An individualized program in research and/or practicum within a professionally-oriented organization, subject to approval of the department faculty.

DANC 451 Careers in Dance

Semester course; 3 lecture hours. 3 credits. Realistic aspects of the dance profession, as performer, teacher and researcher. The student's learning experience culminates in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 490 Senior Project

Semester course; 3 lecture hours. 3 credits. Prerequisites: DANC 303-304 and approval of the chair. The culmination of the student's learning experience in a final project that enhances and challenges the student in both areas of performance and choreography. The project must attain public performance status.

DANC 491 Topics in Dance

Semester course; 1-4 credits. May be repeated for a maximum of eight credits. Prerequisite: Permission of instructor. A seminar or workshop on a selected issue or topic in the field of dance. See the Schedule of Classes for specific topic(s) to be offered each semester.

Department of Fashion Design and Merchandising

Karen M. Guthrie

Associate Professor and Department Chair (1984)
B.S. Virginia Commonwealth University
M.Ed. Virginia Commonwealth University

The Department of Fashion Design and Merchandising offers three tracks: fashion design, leading to a Bachelor of Fine Arts degree; fashion merchandising, leading to a Bachelor of Arts degree; and home fashions

merchandising, leading to a Bachelor of Arts degree.

The fashion design curriculum offers technical and design courses that provide skills required in the fashion industry. Individual designs are presented in two-dimensional form, developed and perfected through techniques used in the fashion industry, and then executed in final and three-dimensional form in fabrics appropriate to the design. Sophomores are required to purchase departmentally approved dress forms and attend a field trip to New York City.

The major in fashion merchandising represents a strong background from marketing, business and specialized professional courses with an emphasis on globalism. Students are directed toward assignments that will develop their skills in research, writing, presentation and critical thinking. Graduates find career opportunities in fashion forecasting, product development, advertising and promotion, retail management, buying, and international marketing.

Home fashions is a track that focuses on furnishings, accessories and textiles specific to the home furnishings industry. The home furnishings industry is one of the fastest growing areas of the fashion market. Objectives for students in the track are to gain product knowledge, understand consumer behavior and develop marketing strategies for successful employment with retail organizations and major manufacturers.

All tracks are extremely time consuming. Students are expected to put class attendance and study time above other campus activities or employment.

Students must take classes in the sequence prescribed by the department and adhere to all prerequisites. Failure to comply can lengthen the number of semesters necessary for completion of degree requirements.

Internships provide not only experience, but industry contacts and are strongly recommended. They may be conducted during the fall, spring or summer semesters.

Degree requirements in fashion design

	credits
Foundation studios	14
Art history	9
Professional courses:	
Construction techniques	
Draping	
Patternmaking	

Fashion drawing	
Textiles for the apparel industry	
Design theory and illustration (four three-credit courses)	
Fashion seminar	63
General education*	25
Free electives	12
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	123

Note: Art foundation students are accepted into the design track with the expectation and requirement that they will complete Art Foundation studio courses with a minimum grade of “C” and maintain a minimum GPA of 2.0.

Degree requirements in fashion merchandising

	credits
General studies	
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Literature, language or WI elective	6
ENGL 303 Writing in the Workplace	3
SOCY 101 General Sociology	
or PSYC 101 Introduction to Psychology	3 or 4
Natural science with laboratory	4
Ethics	3
Mathematics	3
SPCH 321 Speech for Business and the Professions or SPCH 121 Effective Speech	3
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	31 or 32
 Art history	
ARTH 103 Survey of Western Art	3
ARTH 104 Survey of Western Art	3
Non-Western art elective	3
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	9

Professional education

FASH 145 Computers for Fashion I	3
FASH 240 Survey of the Fashion Industry I	3
FASH 241 Survey of the Fashion Industry II	3
FASH 210 Visual Merchandising	
or FASH 350 Fashion Promotion	3
FASH 250 Concepts of Fashion	
Merchandising Environment	3
FASH 290 Textiles for the Fashion Industry	3
FASH 319 Contemporary Fashion (WI)	3
FASH 341 Merchandise Planning	3
FASH 342 Retail Buying Simulation	3
FASH 343 Fashion Forecasting	3
FASH 360 Importing and Exporting Fashion	3
FASH 443 Supervision and Management	3
FASH 445 Advanced Application	
in Store Development	3
FASH 450 Line Development	3
FASH 490 Fashion Seminar	3
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	45

Business courses

ACCT 202 Survey of Accounting	3
MRBL 308 Introduction to Marketing	3
MRBL 323 Legal Environment of Business	3
MRBL 371 Integrated Marketing	
Communications	3
MRBL 373 Buyer Behavior	3
MRBL 376 Dynamics of Retail Management	3
MRBL 378 International Marketing	3
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Electives

Internships are not required but strong recommended.
FASH 492 Internship (1, 2 or 3 credits)

Total credits 121 or 122

Minor in fashion merchandising

Students from any department in the university may request a minor in fashion merchandising — if they have a 2.8 GPA or above — which consists of 18 credits. The following nine credits are required: FASH 240 Survey of the Fashion Industry I; FASH 241 Survey of the Fashion Industry II; and FASH 341 Merchandise Planning and Control. With the guidance of a track adviser, students will choose nine additional credits from the list of professional fashion merchandising courses; six of these credits must be at the 300 or 400 level. A cumulative GPA of 2.0 must be attained in these courses.

Degree requirements in home fashions merchandising

	credits
Professional education	
Interior design	52
Computers	
Fashion industry	
Visual merchandising	
Supervision and management	
Textiles	
Computations for merchandise planning and control	
Buying simulation	
Fashion forecasting	
Historic and ethnic textiles	
Importing/exporting fashion	
Advanced store development	
Fashion seminar	
Art history	
General education*	42
Business courses	24
Approved electives	8
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	126

* In accordance with the school’s general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a “B” or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Note: Any student who fails two or more required courses or fails a required course for a second time will be dropped from the program.

Courses in fashion design and merchandising (FASH)

FASH 145 Computers for Fashion I

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Laptop computer required. Basic computer skills required. This course introduces students to contemporary technology with emphasis on basic computer graphics software used in the fashion industry today.

FASH 201 Construction Techniques

Semester course; 1 lecture and 4 studio hours. 3 credits. The basic principles involved in garment construction with emphasis on professional design-room practices in sewing, pressing and finishing of garments. Knowledge of basic sewing is advisable.

FASH 202 Draping

Semester course; 1 lecture and 4 studio hours. 3 credits. Basic principles of three-dimensional patternmaking by draping muslin on a dress form. Student will be required to purchase the specified dress form.

FASH 203-204 Patternmaking

Continuous course; 1 lecture and 4 studio hours. 3-3 credits. Basic principles of patternmaking, developing various styles from master patterns and creating designs to be constructed in muslin. Students also will draft a set of master patterns and learn to “true” the pattern to produce production ready patterns.

FASH 205-206 Fashion Drawing I

Continuous course; 1 lecture and 4 studio hours. 3-3 credits. Introduction to the fashion figure working from models and photographs. Covers flat drawing techniques and fashion design theory. Explores different media and the use of color.

FASH 210 Visual Merchandising

Semester course; 3 lecture hours. 3 credits. Theory and practical application of visual merchandising techniques in the fashion industry. Development of design concepts, fixturing, layout and presentation for retail, manufacturing and special events. Use of computer-aided design.

FASH 240 Survey of the Fashion Industry I

Semester course; 3 lecture hours. 3 credits. A survey of the apparel industry emphasizing the role of the designer and the various stages of production.

FASH 241 Survey of the Fashion Industry II

Semester course; 3 lecture hours. 3 credits. An analysis of the apparel industry emphasizing retail aspects.

FASH 245 Computers for Fashion II

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisites: FASH 145. Laptop computer required. Assumes basic computer skills. This course introduces advanced skills in technology by utilizing graphic, illustration and desktop publishing software as they are used in the fashion industry.

FASH 250 Concepts of Fashion Merchandising Environment

Semester course; 3 lecture hours. 3 credits. Basic research techniques and analysis skills for evaluating contemporary fashion and apparel topics.

FASH 290 Textiles for the Fashion Industry

Semester course; 3 lecture hours. 3 credits. This course is designed to develop an understanding of the factors which influence the tactile behaviors of fabrics during garment design, manufacture and wear. Apparel fiber construction, finish and properties both natural and man-made will be analyzed.

FASH 301, 302 Design I Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: Completion of all sophomore studio courses. A series of courses that focus on selected topics in design, reflecting current fashion emphasis. See Schedule of Classes for current offerings.

FASH 319 Contemporary Fashion

Semester course; 3 lecture hours. 3 credits. An in-depth study of fashion beginning at the Industrial Revolution and continuing to the present from a historical and socioeconomic point of view. Hands-on examination of vintage garments and field trips to museum collections. Writing intensive.

FASH 330/IDES 330/CARD 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

FASH 341 Merchandise Planning and Control

Semester course; 3 lecture hours. 3 credits. Theory and mathematical application of the major elements of retail buying and merchandising. Discussion covers planning and control of inventory, profit analysis, merchandise pricing and purchase negotiation.

FASH 342 Retail Buying Simulation

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 341. Practical application of retail buying skills in relation to the calculations for a six month buying plan for a department within a department store. The simulation includes projection of sales, stock levels, markdowns, purchases, gross margin, markup, etc.

FASH 343 Fashion Forecasting

Semester course; 3 lecture hours. 3 credits. Using basic principles to identify, track and analyze current trends, students will develop a fashion forecast. Demographic, economic, social and historical forces of behavior will be evaluated.

FASH 350 Fashion Promotion

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Through lecture and field experience, students are exposed to technical and creative aspects

of fashion promotion and public relations. A variety of media are utilized. Students may be required to spend time outside the classroom on promotional activities.

FASH 360 Importing and Exporting Fashion

Semester course; 3 lecture hours. 3 credits. Prerequisites: FASH 190 and FASH 240. An overview and introduction to import/export theory, government regulations and global sourcing. Students will gain insight to the dynamics and cultures of the international fashion marketplace.

FASH 370/CARD 370/IDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Writing intensive.

FASH 390/INTL 390 Historic and Ethnic Textiles

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 290 or IDES 446 or permission of instructor. An examination of the history of textile design and production around the world.

FASH 391 Fashion Workshop

Semester course; variable; 1-3 credits per semester. May be repeated for a maximum total of six credits. A topical workshop offered in various areas of fashion not included in the regular curriculum. See the Schedule of Classes for particular areas to be covered each semester.

FASH 401, 402 Design II Studio

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisites: Completion of all sophomore studio courses and permission of instructor. A series of upper level design classes for the advanced or skilled student, reflecting current topics in the fashion industry. See Schedule of Classes for current offerings.

FASH 403 Design Theory and Illustration I

Semester course; 1 lecture and 4 studio hours. 3 credits. May be repeated. Prerequisite: Completion of all Department of Fashion sophomore studio courses. A series of design theory and illustration topics that address current fashion and support the Department of Fashion design courses. See Schedule of Classes for current offerings.

FASH 404 Design Theory and Illustration II

Semester course; 1 lecture and studio hours. 3 credits. May be repeated. Prerequisites: Completion of all Department of Fashion sophomore studio courses and permission of instructor. A series of advanced design theory and illustration topics that address current fashion, challenge the skilled student and support the Department of Fashion design courses. See Schedule of Classes for current offerings.

FASH 443 Supervision and Management

Semester course; 3 lecture hours. 3 credits. The study of advanced leadership skills as they relate to the fashion industry. Topics include team building, negotiations, time and stress management, and communications. Emphasis placed on leadership and supervision skills across cultures.

FASH 445 Advanced Application in Store Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: FASH 341. Studies operational functions as related to

the objective and decision making procedures inherent in successful small business retailing. Quantitative strategies will be applied as students develop a model plan for a retail business.

FASH 450 Line Development

Semester course; 3 lecture hours; 3 credits. Pre- or corequisite: FASH 341. Students will learn the fundamentals of producing a line of apparel, accessories or home fashions from conception to consumer. Emphasis will be placed on market research, specification sheets, costing, sourcing, production and sales.

FASH 490 Fashion Seminar

Semester course; 3 lecture hours. 3 credits. A professional seminar for senior fashion majors. Lectures will cover career opportunities, job preparation and current events impacting global fashion industry.

FASH 492 Independent Study in the Fashion Industry

Semester course; 1-3 credits. May be repeated. Prerequisite: Junior or senior standing as a major in fashion design or fashion merchandising. Learning experiences should be designed with the supervising faculty member in the form of a contract between student and instructor; approval of department chair necessary prior to registration. This course will be limited to those students who have demonstrated intense commitment to a particular area of study within the fashion industry.

FASH 493 Fashion Internship

1-3 credits. It may be a single internship for three credits or several (maximum three) totaling three credits. Open to junior and senior-level fashion majors only. A practicum in which students apply on-the-job the formal classroom and studio training they have received in their option (design, merchandising) on campus.

Department of Interior Design

Sharran F. Parkinson

Department Chair (2004)
 B.A. 1978 Stephens College
 M.S. 1985 Florida State University
 Ph.D. 1994 Ohio University

The Department of Interior Design offers a FIDER-accredited, professional program that seeks to produce competent creative designers whose design solutions are based on human response in the contemporary environment. Mastery of design skills, development of productive habits, knowledge of resources and an awareness of interrelated disciplines equip the student with the tools and expertise necessary to pursue creative design positions or to enter programs of advanced study.

Students may enter the interior design program in the fall semester only. Admission to the degree program follows successful completion of the freshman Art Foundation Program, or for transfer students equivalent preparation at other institutions. All students

are required to have a minimum GPA of 2.0 the semester before entering the program, as a cumulative average before entering and each semester they continue in the program. Students must attain a minimum grade of "C" in each studio to continue to the next level studio. A portfolio of work is required by all applicants. The department uses the portfolio evaluation process established in the School of the Arts for initial acceptance. A second portfolio review will take place at the end of the sophomore year to determine whether a student may continue in the program.

The department has a very comprehensive Web site with extensive information about the program, interior design in general, faculty, student work and the department newsletter. In advance of scheduling a meeting for department advising, students should review the Web site at <http://www.vcu.edu/artweb/interiors>.

The department relates with the professional interior design community through a variety of activities. The department invites featured speakers to share experiences, participates in the annual ASID EXPO, facilitates mentorships with professional designers and supports student internships. Active student chapters of the American Society for Interior Designers (ASID) and the International Interior Design Association (IIDA) provide additional enriching opportunities for student involvement.

The program places a strong emphasis on studio design courses. Because of this emphasis, students must enroll in only one design studio course (IDES 201, 202, 301, 302, 303, 304 or 401) each semester even if they are a transfer student. Students must enroll in one graphics course with the design studio course until all graphics courses are completed. To ensure appropriate preparation, students must enroll in IDES 441 Senior Design Seminar, an issues course, the semester before enrolling in IDES 401 Senior Interior Design Studio, a comprehensive design studio. A senior exhibition and reception are typically held at the end of the fall and spring semesters.

A laptop computer is required in the interior design program. The department recommends a specific computer package that is used throughout the academic year. The package is updated each year because of changes in computer technology. The total cost will be approximately \$3,600.

Information about the current computer package is available on the department Web site. Because of unforeseen changes in computer requirements, students should consult with the department before enrollment in computer graphics courses. Students are required to purchase a laptop computer and appropriate software with enrollment in IDES 212 Interior Graphics.

An interior design student kit also is required in interior design. It contains a variety of drawing supplies for graphics and design studio courses. Students are required to purchase the kit, or provide appropriate substitutes of equipment, with enrollment in IDES 211 Interior Graphics – Manual. Arrangements for student kits are made through the VCU Academic Campus bookstore.

The department recognizes that students may bring with them a variety of background and experiences. For this reason, interior design courses are open to challenge based on regulations for "Credit by Examination" stated in this bulletin. The department criteria for challenge include: acceptance into the interior design program; a maximum number of nine credits; and application based upon demonstrated experience, portfolio work and professional years of experience. The challenge may not be requested during the final semester before graduation. The following courses may be challenged: IDES 211, 212, 231, 321, 322, 324, 422 and 431.

The department sponsors numerous field trips that enable students to gain exposure to the work of prominent designers.

The department has several scholarships and awards available to students. For more information, see the department Web site.

Degree requirements in interior design

General education	credits
ENGL 101, 200 Writing and Rhetoric	
Workshop I, II	6
Mathematics*	3
Natural science/laboratory	4
Sociology/psychology	3
Open elective (design history)	3
Open elective (ethics)	3
Open electives	9
Art Foundation Program	20
Interior design	
Design	24
Communication graphics	12
Building and interior components	18

Profession	8
Theory and history	9
	122

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Courses in interior design (IDES)

IDES 103-104 Introductory Studio Course

Continuous course; 1 lecture and 2 laboratory hours. 2-2 credits. Offered evenings only. Not open to interior design majors. A practical course in which the student becomes familiar with fundamentals of interior design through work with floor plans, furniture selection and arrangement, floor and wall compositions, color harmony, wallpaper and other aspects of design.

IDES 201 Introductory Interior Design Studio

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: All Art Foundation Program studio courses and concurrent enrollment in IDES 231 and IDES 211 or 212. Interior design majors only; other School of the Arts majors by approval. Introduction to identification and applications of fundamental interior design issues through applied projects. Emphasis includes: developing design ideas, understanding design philosophies, design principles and elements, human factors, defining and solving problems creatively, analyzing spatial and functional requirements, applying design processes, creating an aesthetic space and preparing a presentation as related to interior design.

IDES 202 Introductory Interior Design Studio II

Semester courses; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: Art Foundation Program studio classes, IDES 201, IDES 211 or 212, and IDES 231. Interior design majors only; other School of the Arts majors by approval. The course expands upon the interior design issues introduced in IDES 201 through their application in small scale interiors projects of increasing size and complexity. It emphasizes the further development of methods and processes for design development, understanding of basic design principles and elements, and ways of analyzing design requirements through written, oral, graphic and three-dimensional documentation.

IDES 211 Interior Graphics – Manual

Continuous course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and concurrent enrollment in IDES 201, 301, 302, 303 or 304 and completion of, or concurrent enrollment in IDES 231. Interior design majors only; other School of the Arts majors by approval. Introduction to manual graphic communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model making for professional graphic presentations.

IDES 212 Interior Graphics – Computer

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and concurrent enrollment in IDES 201, 301, 302, 303 or 304 and completion of/or concurrent enrollment in IDES 231. Interior design majors only; other School of the Arts majors by approval. Laptop computer required. Introduction to computer graphic communication techniques in interior design drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 231 Fundamentals of Interior Design

Semester course; 2 lecture hours. 2 credits. Required of all incoming interior design majors; can take prior to or concurrent with IDES 201 and IDES 211 or 212. This course is open to interior design majors only. Introduction to the theories, methods and processes of interior design. This course facilitates the transition of skills and knowledge from the Art Foundation Program to specific interior design applications and focuses on analysis and evaluation of interior environments as a support and supplement to the studio experience.

IDES 241 Physical and Social Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: IDES 231. Theories of behavioral and social aspects of interior design. Study of how people interpret, evaluate and act in the built environment. Social, cultural and economic factors are included.

IDES 251 History of Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 102 and 104. Study of the major theories and styles of the interior environments and furnishings from the 18th to the late 19th centuries. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions. Writing intensive.

IDES 252 History of Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTH 102 and 104. Study of the major theories and styles of the interior environments and furnishings from the late 19th to 20th centuries. Contemporary analysis of cultural conditions and the manner in which designers and architects respond to those conditions. Writing intensive.

IDES 301, 302, 303, 304 Interior Design Studio

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 201, 202 and 231, and concurrent enrollment in IDES 211, 212, 311 or 312. Interior design majors only. Discussion and application of design philosophies, theories and creative design strategies at the intermediate level. Emphasis includes: research, survey and analysis, design processes, spatial and functional analysis, design elements, principles, human factors, creative problem solving, code requirements, selection of interior components and preparation of a presentation. Topics will vary by sections and will be posted in the department.

IDES 311 Advanced Interior Graphics – Manual

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: IDES 211. Interior design majors only. Advanced manual graphic communication techniques in interior design including drafting, sketching, rendering, perspective drawing, presentation formats and model making for professional graphic presentations.

IDES 312 Advanced Interior Graphics – Computer

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: IDES 212. Interior design majors only. Laptop computer required. Advanced computer graphic communication techniques in interior design drafting, rendering, perspective drawing, presentation formats and 3-D imaging for professional graphic presentations.

IDES 321 Interior Materials and Textiles

Semester course; 3 lecture hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and IDES 231 or comparable experience by approval. Interior design and School of the Arts majors only. Investigation and practical application of materials and textiles in interior environments.

IDES 322 Color in Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and IDES 231 or comparable experience by approval. Interior design and School of the Arts majors only. Advanced study of color and its impact on interior spaces; theory and practical applications.

IDES 323 Light in Interior Environments

Semester course; 3 lecture hours. 3 credits. Prerequisites: All Art Foundation Program studio courses, IDES 231, and IDES 201, 211 or 212, or comparable experience by approval. Interior design and School of the Arts majors only. The study of illumination and its impact on interior spaces; theory and practical applications.

IDES 324 Furniture Design

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and IDES 231 and IDES 201, 211 or 212, or comparable experience by approval. Interior design, crafts, sculpture and theater design majors only. Advanced study of furniture design and custom millwork as related to the design of interior environments. Original student designs are developed through the study of structure and materials.

IDES 330/FASH 330/CARD 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

IDES 370/FASH 370/CARD 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Writing intensive.

IDES 401 Senior Interior Design Studio

Semester course; 2 lecture/seminar and 6 studio hours. 4 credits. Prerequisites: IDES 201, 202, 211, 212, 231, 241, 251 or 252, 301, 302, 303, 304, 321, 322, 323; enrollment previously or concurrently with IDES 311 or 312; enrollment the semester before in

IDES 441. Interior design majors only. Department-approved senior interior design project. Advanced design experience of student's choice of an interior environment of complex scope and scale to meet the needs of specific clients and prepare students for the practice of the profession. The project addresses issues of design of the 21st century and integrates all aspects of the curriculum.

IDES 421 Construction Documents

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and IDES 201, 202, 231, 212, 312 and concurrent enrollment in IDES 301, 302, 303, 304 or 401. Interior design majors only. Laptop computer required. Study of construction documents on the computer as related to the design of interior environments.

IDES 422 Building Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: All Art Foundation Program studio courses and IDES 201 and 231. Interior design majors only. Contemporary theories and techniques in the design of buildings as related to interior design, small structural considerations, HVAC, acoustics, plumbing and the attributes of materials.

IDES 431 ID Business Practices

Semester course; 3 lecture hours. 3 credits. Prerequisites: IDES 201 and 231. Interior design majors only. Writing intensive. Advanced study of the interior design profession as related to professional and business practices including: responsibilities, services, ethics, business and project management, and marketing.

IDES 441 Senior Design Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisites: IDES 201, 202, 211, 212, 231, 241, 251 or 252; two of either 301, 302, 303, or 304; 321, 322, 323; previous concurrent enrollment in IDES 311 or 312; enrollment the following semester in IDES 401. Interior design majors only. Discussions of current design theories, issues and concerns of the built environment, future studies and the global community. Development of senior interior design project programming with integration of seminar discussion topics.

IDES 491 Topics in Interior Design

Semester course; 1-4 credits. May be repeated for a maximum of eight credits. Prerequisite: Permission of the instructor. An in-depth study of a topical issue in interior design. See the Schedule of Classes for specific course offerings.

IDES 493 Interior Design Internship

Semester course; 3 credits. Prerequisites: Consent of coordinator and department chair. IDES 201, 202, 211, 212, 231, 241, 251 or 252; and one of either 301, 302, 303 or 304; and 2.2 GPA in major course work in interior design. Interior design majors only. Provides supervised practical work experiences that are coordinated with professional interior designers in the field. Formal arrangements must be made. Graded as pass/fail.

Department of Music

John Guthmiller

Professor and Department Chair (1988)
B.M.E. 1974 Murray State University
M.M. 1976 Florida State University
D.M.A. 1982 University of Colorado

The Department of Music is committed to the advancement of Western art music and jazz as academic disciplines, as fields of professional endeavor and as a viable presence in the community. Entrance and graduation requirements comply with the National Association of Schools of Music guidelines. An audition and written general musicianship examination and interview are necessary for admission. Students also must meet the general admission requirements of the university. For audition information contact Virginia Commonwealth University, Department of Music, 922 Park Ave., P.O. Box 842004, Richmond, VA 23284-2004.

All music majors are required to maintain a cumulative GPA of 2.0 and pass at least one Applied Achievement Level within any two-semester period (not including summers) in order to continue as music majors. Music foundation students also must pass Theory I and II and Aural Skills I and II by the end of the fourth semester. In addition, students must pass a minimum number of Achievement Levels (as published in the undergraduate music handbook) to qualify for admission into a specific degree program (performance, music education, Bachelor of Arts). Intended jazz studies majors additionally must pass at least one jazz applied music level within the first three semesters in order to declare jazz studies as a degree track. After entering a specific degree track, all music majors must continue to earn at least one Applied Level every two semesters. Any student who fails to meet or maintain these standards will not be allowed to continue as a music major. Students may audition for re-admission into the music major only with permission from the Department of Music.

The Bachelor of Music degree is the initial professional degree in music. Its primary emphasis is on development of the skills, concepts and sensitivities essential to the professional life of the musician. At the center of the instructional program for this degree is the "core curriculum," comprising 32-34 credits of instruction in aspects of musicianship fundamental to all music

degree programs. Included are courses in basic music theory, aural skills, music history, conducting and advanced theoretical skills.

The Bachelor of Music/Music Education Program track incorporates requirements necessary to qualify for the state of Virginia's Collegiate Professional Certificate to teach music in the public schools. Reciprocity between Virginia and numerous other states makes it possible for those music education students who become certified to teach in Virginia to obtain certification in those other states.

The Bachelor of Arts in Music Program is designed for students who desire a program with a strong emphasis in music, combined with a strong liberal arts component, and a minor in an area other than music. Included are courses in basic theory, aural skills, music history and applied music, as well as restricted and free music electives.

Electives in music

Students majoring in a field other than music may register for ensembles, private or class lessons, and a variety of classroom courses in music. Classes in music appreciation, African-American music, introduction to writing music, basic music skills and special offerings in music are specifically designed for the non-music major. Other courses are open to those who have adequate background.

Minor in music

Any VCU student may declare a minor in music with approval from the Department of Music. The music minor comprises 22 credits distributed among the areas of music history/theory, ensemble performance, private lessons and music electives. A music faculty adviser counsels every student about the selection of appropriate courses based on the student's competence and interest. Using the guidelines that follow, students have several options to meet their minor requirements:

- Music history and theory selected from MHIS 105, 110, 120, 145, 146, 220, 243, 250, 321, 322, 323 and 324 for a total of nine credits.
- Large ensemble for four credits.
- Private lessons for four credits. One credit per semester; all credits to be

earned on a single instrument. Students must earn Achievement Level I.

- Music electives for a total of five credits.

Graduate study

The department offers graduate degrees in music with tracks in performance, conducting and music education. See the Graduate and Professional Programs Bulletin for courses and curricula.

Fees

All students registering for private music lessons pay an applied music fee. This fee is additional to the comprehensive fee charged only to majors in the School of the Arts. Current fee rates for music lessons can be found in the Schedule of Classes.

Degree requirements in music

Applied music achievement levels

Eight achievement levels have been established for applied instrumental and vocal study. These levels are explicit in terms of expected repertoire, musicianship/style, technique and sight-reading. "Honors" may be earned by students in any area who go beyond the eighth level. While freshmen normally earn Level I at their first semester juries, transfer students may be awarded a higher level based on their entrance auditions. The table below indicates the achievement levels required for graduation.

Bachelor of Music

Performance (all areas except jazz)	VIII
Jazz	IV in classical studies VI in jazz
Music education	VI
Composition	VI in composition IV in performing medium

Bachelor of Arts in Music

All areas	IV
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Recital/convocation attendance

All undergraduate majors are required to pass four semesters of recital/convocation attendance for graduation. During each semester of enrollment, the student must attend a minimum number of concerts or recitals plus departmental convocations in order to pass requirement.

Master class

This consists of participation in weekly master classes in the student's applied major area. For students in the Bachelor of Music Program, eight semesters are required for the performance track; six semesters for the music education track. Students in the Bachelor of Arts in Music program must complete four semesters of master class.

Ensemble requirements

To ensure consistent skill development in ensemble settings, only one large ensemble credit per semester will be counted toward a student's large ensemble requirements. Students whose principal performing medium (major instrument) is a band or orchestral instrument or voice must satisfy the large ensemble requirement by performing in a large ensemble on that principal performing medium. An exception is made in the case of jazz studies majors whose principal instrument is saxophone. Jazz saxophone majors may elect to satisfy the large ensemble credit on another woodwind instrument. Bachelor of Music/Performance Program pianists must satisfy the ensemble electives by completing four of the six elective credits as pianists (i.e., by playing the piano in ensembles). Bachelor of Music/Performance Program organists must satisfy the large ensemble requirement through credit earned in a large choral ensemble. Bachelor of Music/Performance Program voice majors may elect to substitute opera theater for a large ensemble in the semester in which the senior recital is presented. Bachelor of Arts in Music students must earn six ensemble credits, which are not restricted with regard to large or small ensemble.

Bachelor of Music/performance

Brass, percussion, strings, woodwinds

Music core curriculum credits

MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 173-174, 273 Keyboard Skills	3
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 199 Recital/convocation attendance (four semesters)	0
MHIS 305 Form and Analysis I	2

Supportive courses

APPM 370 Large Ensembles*	7(4)**
Ensemble electives	5(8)***
APPM 380 Jazz Laboratory or APPM 390 Small Jazz Ensemble or APPM 300-level Jazz Private Lessons	1
Restricted music electives (selected from APPM 366 Aural Skills VI and any MHIS or MUSC 300- or 400-level course not otherwise required in the student's curriculum)	8
APPM 463 Pedagogy (WI)	2
APPM 300-level Principal Performing Medium	24
APPM 300-level Secondary Performing Medium ⁺	3
APPM 299 Master Class (eight semesters)	0
APPM 394 Junior Recital	0
APPM 494 Senior Recital	0
General studies	
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
HIST 101 or 102 Survey of European History	3
Social science elective	3
Ethics	3
Mathematics/statistics elective	3
Laboratory science elective	4
Open electives	18
	<hr/> 124

* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

** Large ensemble requirements for guitar majors are four credits.

*** Ensemble electives for guitar majors are eight credits.

⁺ Secondary performing medium requirements must be fulfilled with studies on a different instrument.

Organ

Music core curriculum credits

MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 274 Keyboard Skills	1
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 199 Recital/convocation attendance (four semesters)	0
MHIS 305 Form and Analysis I	2

Supportive courses

APPM 373-374 Advanced Keyboard Skills	2
APPM 375 Score Reading	1
APPM 370 Large Ensembles (choral)*	6
Ensemble electives	2
Accompanying	4
APPM 463 Pedagogy***	2

APPM 161-162 Lyric Diction	6
MUSC 315 Counterpoint	3
APPM 300-level Principal Performing Medium	24
APPM 300-level Secondary Performing Medium**	4
MHIS 336 Organ Literature and Design***	2
Service Playing***	2
APPM 299 Master Class (eight semesters)	0
APPM 394 Junior Recital	0
APPM 494 Senior Recital	0

General studies

ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
HIST 101 or 102 Survey of European History	3
Social science elective	3
Ethics	3
MHIS 201 Acoustics (laboratory science elective)	3
Mathematics/statistics	3
Open electives	13
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* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

** Secondary performing medium requirements must be fulfilled with studies on a different instrument.

*** Offered every other year.

Piano

Music core curriculum credits

MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 274 Keyboard Skills (advanced)	1
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 190 Recital/convocation attendance (four semesters)	0
MHIS 305 Form and Analysis I	2

Supportive courses

APPM 373-374 Advanced Keyboard Skills	2
APPM 375 Score Reading	1
APPM 370 Large Ensembles*	2
Ensemble electives (four as pianists)	6
Jazz Laboratory or Small Jazz Ensemble or Jazz Private Lessons	2
Restricted music electives (selected from APPM 366 Aural Skills VI and any MHIS or MUSC 300- or 400-level course not otherwise required in the student's curriculum)	6
Accompanying	4
APPM 463 Pedagogy** (WI)	2
APPM 300-level Principal Performing Medium	24
APPM 300-level Secondary Performing Medium***	3
MHIS 303 Piano Literature**	2
APPM 299 Master Class (eight semesters)	0

APPM 394 Junior Recital	0
APPM 494 Senior Recital	0

General studies

ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
HIST 101 or 102 Survey of European History	3
Social science elective	3
Ethics	3
Mathematics/statistics	3
Laboratory science elective	4
Open electives	16
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* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

** Offered every other year.

*** Secondary performing medium requirements must be fulfilled with studies on a different instrument.

Voice

Music core curriculum	credits
MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 173-174, 273 Keyboard Skills	3
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 190 Recital/convocation attendance (four semesters)	0
MHIS 305 Form and Analysis I	2

Supportive courses

APPM 370 Large Ensembles*	7**
Ensemble electives	3
APPM 380 Jazz Laboratory or APPM 390 Small Jazz Ensemble or Jazz Private Lessons	1
APPM 385 Opera Theatre***	2
APPM 463 Pedagogy (WI)	2
APPM 300-level Principal Performing Medium	24
APPM 300-level Secondary Performing Medium ⁺	3
APPM 161-162 Lyric Diction	6
MHIS 465 Song Literature [#]	2
APPM 299 Master Class (eight semesters)	0
APPM 394 Junior Recital	0
APPM 494 Senior Recital	0

General studies

ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
FRLG 101-102 Foreign Language	8
Social science elective	3
Ethics	3
Mathematics/statistics	3
Laboratory science elective	4
Open electives	13
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* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

** In the semester of the senior recital, voice majors may substitute opera theatre for one large ensemble credit.

*** THEA 107 Introduction to Stage Performance or DANC 101 Modern Dance Technique I can be substituted with departmental approval.

⁺ Secondary performing medium requirements must be fulfilled with studies on a different instrument.

[#] Offered every other year.

Jazz Studies

Music core curriculum	credits
MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 173-174, 273 Keyboard Skills	3
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
APPM 190 Recital/convocation attendance (four semesters)	0
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
MHIS 305 Form and Analysis I	2

Supportive courses

APPM 370 Large Ensembles*	4
APPM 390 Jazz Ensembles	9
APPM 300-level Performing Medium (eight credits classical, 16 credits jazz)	24
APPM 251 and 252 Jazz Improvisation	6
MHIS 311, 312, 411, 412 Jazz Arranging	12
APPM 299 Master Class (four semesters classical, four semesters jazz)	0
APPM 394 Junior Recital	0
APPM 494 Senior Recital	0
MHIS 324 Music History IV (WI)	2

General studies

ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
HIST 101 or 102 Survey of European History	3
Social science elective	3
Ethics	3
Mathematics/statistics	3
Laboratory science elective	4
Open electives	11
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* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

Bachelor of Music/composition

Music core curriculum	credits
MHIS 1450146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 173-174, 273-274 Keyboard Skills	4
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 190 Recital/convocation attendance (four semesters)	0
MHIS 305 Form and Analysis I	2
Supportive courses	
MUSC 201 Class Composition	2
APPM 300-level Performing Medium	12
APPM 300-level Private Composition	13
APPM 373-374 Advanced Keyboard Skills	2
APPM 375 Score Reading	1
MUSC 315 Counterpoint I	3
MUSC 316 Counterpoint II	3
MUSC 406 Orchestration	3
MHIS 306 Form and Analysis II (WI)	2
APPM 370 Large Ensembles*	5
Ensemble electives	7
APPM 380 Jazz Laboratory or APPM 390 Small Jazz Ensemble or APPM 300-level Jazz Private Lessons	1
APPM 299 Master Class (eight semesters: four in performing medium, four in composition)	0
APPM 494 Senior Recital	0

General studies

ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
HIST 101 or 102 Survey of European History	3
Social science elective	3
Ethics	3
Mathematics/statistics	3
Laboratory science	4
Open electives	13
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	124

* Only one large ensemble each semester may be used to fulfill large ensemble requirements.

Bachelor of Music/music education

Music core curriculum	credits
MHIS 145-146, 245-246 Integrated Theory (I-IV)	12
APPM 165-166, 265-266, 365 Aural Skills I-V	5
APPM 173-174, 273 Keyboard Skills	3
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	1
MHIS 321, 322, 323 Music History	6
APPM 381 Conducting	2
APPM 190 Recital/convocation (four semesters)	0
MHIS 305 Form and Analysis I	2

	Instrumental Track Major credits	Vocal/Choral Track Major credits
Supportive courses		
APPM 282 Conducting Lab Ensembles	1	1
APPM 161 or 162 Lyric Diction*	0	3
APPM 181, 183, 184, 185, 187, 193**, 195 Class Lessons in Instruments	7	6
APPM 300-level Principal Performing Medium	18	18
APPM 300-level Secondary Performing Medium***	4	4
APPM 370 Large Ensembles ⁺	7	7
APPM 390 Small Ensemble electives**	2	0
APPM 380 Jazz Laboratory or APPM 390 Small Jazz Ensemble or Jazz Private Lessons	1	1
APPM 394 Junior Recital	0	0
APPM 299 Master Class (six semesters)	0	0
General studies		
ENGL 101 Writing and Rhetoric Workshop I	3	3
ENGL 200 Writing and Rhetoric Workshop II	3	3
Literature course	3	3
Mathematics	3	3
Mathematics or science elective	3	3
HIST 103 or 104 Survey of American History	3	3
Social science electives	6	6
Mathematics/computer science/statistics elective or MHIS 117 Computers in Music	3	3
Laboratory science elective or MHIS 201 Acoustics	3	3
Open electives	2	2
Professional courses		
EDUS 301 Human Development and Learning	3	3
MUED 290 Introduction to Music in General Education (WI)	3	3
MUED 391 Processes of Music Education	3	3
MUED 383 Observation in Music Education	1	1
MUED 392 Conducting and Rehearsal Techniques	3	3
TEDU 485 and 486 Student Teaching	12	12
	130	130

* Required of vocal/choral majors only (vocalists, keyboardists who plan to become certified in vocal/choral music).

** Required of instrumental majors: certification track only.

*** Must be on the same instrument (For vocal/choral majors: voice for keyboardists; keyboard for vocalist). Instrumental track: three to four credits as one instrument, one credit may be on another instrument.

⁺ Only one large ensemble each semester may be used to fulfill the large ensemble requirement. Large ensemble must be related to student's area, e.g., vocal/choral majors select choral ensembles, instrumental majors select instrumental ensembles.

Bachelor of Arts in Music

Core curriculum	credits
MHIS 145-146, 245-246 Integrated Theory I-IV	12
APPM 165-166, 265-266 Aural Skills I-IV	4
MHIS 120 Introduction to Musical Styles	2
MHIS 220 Introduction to World Music (WI)	2
MHIS 321, 322, 323 Music History	6
APPM 300-level Principal Performing Medium*12	
APPM 370 or 390 Ensembles	6
APPM 190 Recital/convocation attendance (four semesters)	0
APPM 299 Master Class (four semesters)	0
APPM 173-174 or 273-274 Keyboard Skills Music electives [#] (selected from: MHIS and MUSC 300-400; APPM 381)	6
General studies	
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Literature courses	6
Foreign language**	14
Laboratory science/natural science	7
PHIL 211 or 212 Ethics	3
Mathematical and computer science*** (at least one course in each area)	6
HIST 101 or 102 Survey of European History	3
Social science elective	3
Minor or secondary concentration ⁺	18
Open electives	6
	124

* Achievement level IV required.

** Four semesters of one language or two semesters and APPM 161-162 Lyric Diction.

*** Includes computer-related courses listed under business (INFO 160-161, 162-163, 164-165, 166-167, 168).

⁺ Selected from one of the established minor programs in the university or planned as a coherent series of studies. An advisory committee for each B.A. student will approve the secondary concentration course sequence.

[#] Writing intensive course must be selected from a restricted music elective or an elective from outside the music major.

Courses in applied music (APPM)

Upper-division undergraduate students may enroll for selected 500-level graduate courses with permission of the department chair and instructor. See the Graduate and Professional Programs Bulletin for course descriptions.

APPM 161-162 Lyric Diction

Continuous course; 3 lecture hours. 3-3 credits. A study of English, Italian, ecclesiastical Latin, French and German stage diction with practical experience in singing and phonetic transcription using the International Phonetic Alphabet.

APPM 165-166, 265-266, 365-366 Aural Skills I-VI

Continuous course; 2 laboratory hours. 1-1 credit. Open to non-music majors by permission of department chair. Development of skills in melodic and rhythmic dictation, harmonic identification and sight-singing. Emphasis throughout is placed on current uses of technology within the discipline. Designed as companion courses to MHIS 145-146, 245-246.

APPM 173-174, 273-274 Keyboard Skills

Continuous course; 2 laboratory hours. 1-1 credit. Open only to music majors. Proficiency exam through jury required. Acquisition of keyboard performance skills with emphasis on reading, keyboard harmony and improvisation.

APPM 181 Class Lessons in Strings

Semester course; 2 laboratory hours. 1 credit. Designed for music education majors. Achievement of performance competencies and teaching knowledge on violin, viola, cello or bass.

APPM 183-184 Class Lessons in Woodwinds

Continuous course; 2 laboratory hours. 1-1 credit. Designed for music education majors. Achievement of performance competencies and teaching knowledge on flute, clarinet, oboe, bassoon and saxophone.

APPM 185 Class Lessons in Brass

Semester course; 2 laboratory hours. 1 credit. Designed for music education majors. Achievement of performance competencies and teaching knowledge on trumpet, baritone, tuba, trombone and French horn.

APPM 187 Class Lessons in Percussion

Semester course; 2 laboratory hours. 1 credit. Designed for music education majors. Achievement of performance competencies and teaching knowledge on snare drum. Introduction to basic techniques of other percussion instruments.

APPM 193 Class Lessons in Voice

Semester course; 2 laboratory hours. 1 credit. Designed for music education majors. Achievement of performance competencies in voice including vocal production, diction and solo and group performance.

APPM 195 Class Lessons in Guitar

Semester course; 2 laboratory hours. 1 credit. Designed for music education majors. Achievement of basic performance competencies and teaching knowledge on the guitar including chording, single-string technique, plectrum and finger styles.

APPM 197 Class Lessons in Organ

Semester course; 2 laboratory hours. 1 credit. Prerequisite: Permission of instructor. Achievement of basic performance competencies in organ including pedal technique, coordination of hands and feet, and registration.

APPM 199 Recital/Convocation Attendance

Semester course; no credit. Course may be repeated without limit. Music majors only. Attendance at weekly departmental convocations and a minimum of 10 additional concerts or recitals each semester.

APPM 251 Jazz Improvisation I

Semester course; 3 lecture hours. 3 credits. A study of basic compositional techniques that can be used in creating a musically effective improvised solo in the jazz medium.

APPM 252 Jazz Improvisation II

Semester course; 3 lecture hours. 3 credits. Prerequisite: APPM 251 or permission of instructor. Advanced melodic, harmonic and rhythmic improvisational techniques as applied to contemporary jazz compositions.

APPM 282 Conducting Lab Ensembles

Semester course; 1 laboratory hour. 0.5 credits. May be repeated once for credit. Offered only in the spring semester. Reading and conducting experience with a band, chorus or orchestra. Literature emphasized will be appropriate for elementary through secondary school groups.

APPM 299 Master Class

Semester course; no credit. Course may be repeated without limit. Participation in weekly master classes in student's applied major area.

APPM 300-level Private Instruction: Principal and Secondary Performing Mediums

Semester courses; one half-hour or 1 hour private lesson per week. 1 to 3 credits. One hour practice daily for each credit. Repeatable without limitations. Extra fee required. In order to register for any private lesson, non-music majors must obtain correct course number in Room 132, Performing Arts Center; music majors need to consult their advisers. Lessons are available in the following areas: bassoon, carillon (1 credit only), cello, clarinet, composition (by permission of instructor), double bass, drum set (undergraduate, 1 credit only), euphonium, flute, French horn, guitar, harp, harpsichord, oboe, organ, percussion, piano, saxophone, trombone, trumpet, tuba, viola, violin and voice.

APPM 370 Large Ensembles

Semester course; 3 laboratory hours. 1 credit. Each section may be repeated up to eight times for credit. An audition is prerequisite for sections 1, 3 and 4. Sections: (1) orchestra, (2) University Band, (3) symphonic wind ensemble, (4) Commonwealth Singers, (5) Choral Arts Society.

APPM 373-374 Advanced Keyboard Skills

Continuous course; 2 laboratory hours. 1-1 credit. Prerequisite: APPM 274 or permission of instructor. Emphasis is on harmonization with correct style and voice-leading, reading figured bass and lead sheets, improvisation and reducing scores at the keyboard.

APPM 375-376 Score Reading

Continuous course; 2 laboratory hours. 1-1 credit. Prerequisite: APPM 274 or equivalent. Acquisition of skill in reducing scores at the keyboard, beginning with simple three-part works and progressing to full instrumentation.

APPM 380 Jazz Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: MHIS 236. Development of the basic improvisational skills and examination of performance practice in the jazz idiom.

APPM 381 Conducting

Semester course; 1 lecture and 2 laboratory hours. 2 credits. Prerequisites: APPM 266 and MHIS 246. Open to music major. Development of fundamental gestural skills for conducting instrumental and choral ensembles including simple and compound meters, multimetric music and aleatoric music. Introduces basic score reading, aural analysis skills and terminology.

APPM 385 Opera Theater

Semester course; 1 lecture and 4 studio hours. 2 credits. May be repeated up to four times for credit. Prerequisite: Permission of instructor required. Explores aspects of opera through study, written research and fully-staged public performances of operatic scenes and/or one-act operas.

APPM 390 Small Ensembles

Semester course; 2 or 3 laboratory hours. 0.5 or 1 credit. Each section may be repeated up to eight times for credit. Auditions required for all sections. Sections: (1) ensemble for new music, (2) the madrigalists, (3) collegium musicum, (4) women's chorus, (5) vocal ensembles, (6) piano ensembles, (7) accompanying, (8) percussion ensemble, (9) percussion lab ensemble, (10) woodwind ensembles, (11) brass ensembles, (12) chamber orchestra, (13) string ensembles, (14) guitar ensembles, (15) small jazz ensembles, (16) jazz orchestra I, (17) jazz orchestra II, (18) jazz orchestra III, (19) basketball pep band.

APPM 393 Junior Project

No credit. Individual research project in the student's major field under the supervision of faculty.

APPM 394 Junior Recital

No credit. Public presentation of a half-length recital.

APPM 463 Pedagogy

Semester course; 2 lecture hours. 2 credits. A study of the musical, physiological and psychological aspects of teaching instruments or voice. Writing intensive.

APPM 494 Senior Recital

No credit. Public presentation of a full-length recital.

Courses in music history, literature and theory (MHIS)**MHIS 105-106 Introduction to Writing Music**

Continuous course; 3 lecture hours. 3-3 credits. For non-music majors only. Creating and harmonizing melodies, principles of notation and elementary music theory. Second semester emphasis is on creative aspects.

MHIS 110 Elements of Music

Semester course; 3 lecture hours. 3 credits. No degree credit for music majors. A study of music notation, scale and triad forms. Aural skill development will parallel the theoretical studies. Intended to prepare music majors for core curriculum study.

MHIS 117 Computers in Music

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Study and application of music software on mainframe and personal computers. The student will be expected to demonstrate competence in the high-level languages, PASCAL and BASIC. Projects will focus on programming for educators and composers.

MHIS 120 Introduction to Musical Styles

Semester course; 1 lecture and 2 laboratory hours. 2 credits. A study of the major styles and forms of western music with emphasis on the development of active cognitive listening skills through guided listening to selected recorded music.

MHIS 145-146/245-246 Integrated Theory I-IV

Continuous course; 3 lecture hours. 3-3 credits. Open to non-music majors by permission of department chair. The first year is a study of diatonic harmony with emphasis on melodic structure, harmonization and analysis. The second year continues with the study of chromatic harmony and modulation, and concludes with an introduction to 20th century harmony, melody and rhythm. Elements of jazz theory and practice are incorporated where appropriate. Emphasis throughout is placed on current uses of technology within the discipline.

MHIS 201 Acoustics

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Recommended prerequisite: MATH 101. Physical properties of sound and wave mechanics applied to the study and analysis of music and musical instruments. Topics will include instrumental and vocal sound production and perception, timbral characteristics and pitch theory.

MHIS 220/INTL 220 Introduction to World Music

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 120. Study of various non-European musical cultures and musical practices in terms of larger cultural and sociological issues beyond Western traditions. Writing intensive.

MHIS 243 Music Appreciation

Semester course; 3 lecture hours. 3 credits. Not open to music majors. Designed to encourage understanding of music from selected periods. Development of active cognitive listening skills through guided listening to selected recorded music.

MHIS 250/AFAM 250 Introduction to African-American Music

Semester courses; 3 lecture hours. 3 credits. An introductory survey of black involvement with the development of music in America from 1607 to the present. African-American musical styles will be studied from many aspects, including their African roots and contemporary popular expression. Performance practices will be analyzed and active cognitive listening skills developed through guided listening to selected recordings.

MHIS 303 Piano Literature

Semester courses; 2 lecture hours. 2 credits. A survey of stringed keyboard literature. Historical, formal and stylistic considerations of the various periods and composers of keyboard music. Listening and reading assignments included.

MHIS 305 Form and Analysis I

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 246 or permission of instructor. An analytical study of musical forms and salient features of melody, harmony, rhythm and timbre of late Baroque, Classical, early and late Romantic compositions.

MHIS 306 Form and Analysis II

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 305 or permission of instructor. Study of traditional and new approaches to form in the music of the 20th century. Examination of post-tonal harmony as a determinant of form, formal aspects of motivicism, contour, rhythm, register, timbre and texture. Writing intensive.

MHIS 307/PHYS 307 The Physics of Sound and Music

Semester course; 3 lecture hours. 3 credits. Prerequisites: A 100- or 200-level physics course or equivalent and the ability to read music or sing or play a musical instrument, or permission of instructor. Basics of the physics of waves and sound. Fourier synthesis, tone quality, human ear and voice, musical temperament and pitch, physics of musical instruments, electronic synthesizers, sound recording and reproduction, room and auditorium acoustics. Not applicable toward the physics major requirements.

MHIS 311 Jazz Arranging I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 246 or permission of instructor. A study of the basic harmonic, melodic, notational and orchestration techniques needed to draft a successful jazz arrangement. The final project will be to write an arrangement for a 12-piece jazz ensemble.

MHIS 312 Jazz Arranging II

Semester course; 3 lecture hours. 3 credits. Prerequisite: MUSC 311 or permission of instructor. Advanced harmonic, melodic and orchestration techniques applied to writing for the small jazz ensemble, vocal group and large jazz orchestra.

MHIS 321, 322, 323, 324 Music History I-IV

Semester courses; 2 lecture hours. 2, 2 credits. Prerequisite: MHIS 120 or MHIS 243. Study of Western music in a historical context from antiquity to the present, including jazz history. Semester courses divided into the following: antiquity to baroque era, classical to romantic, 20th century and jazz history.

MHIS 336 Organ Literature and Design

Semester course; 2 lecture hours. 2 credits. Prerequisite: MHIS 201 or permission of instructor. A survey of organ music with correlating studies in the design and construction of pipe organs from 1500 to the present.

MHIS 350/AFAM 350/INTL 370 Studies in the Music of the African Continent and Diaspora

Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of six credits. Prerequisite: MHIS 243, MHIS/AFAM 250 or permission of instructor. An in-depth examination of selected topics and issues in African-derived musical and cultural traditions. See the Schedule of Classes for specific offerings.

MHIS 380 Survey of the Music Industry

Semester course; 3 lecture hours. 3 credits. Topics include copyright, business organization, music production, management, recording, free lancing, grants, taxation and careers allied with music.

MHIS 392 and 492 Independent Study

Semester courses; variable; 1-6 credits per semester. Maximum total of six credits. Determination of the amount of credit and permission of the instructor and department chair must be obtained prior to registration for the course. Open generally only to students of junior and senior standing who have individual interests in areas not otherwise available to the student.

MHIS 411 Jazz Arranging III

Semester course; 3 lecture hours. 3 credits. Availability contingent upon student demand and faculty resources. Techniques of arranging for the contemporary pop medium.

MHIS 412 Jazz Arranging IV

Semester course; 3 lecture hours. 3 credits. A study of the techniques used in modal, blues and other forms of contemporary jazz composition. Availability contingent upon student demand and faculty resources.

MHIS 465 Song Literature

Semester courses; 2 lecture hours. 2 credits. A survey of the vocal literature of Germany, France, England and other countries.

MHIS 491 Topics in Music

Semester course; variable; 1-3 credits per semester. May be repeated for a maximum of nine credits. Flexible semester courses in selected aspects of music performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

Courses in music composition (MUSC)

MUSC 201 Class Composition I

Semester course; 2 lecture hours. 2 credits. Prerequisites: APPM 166, MHIS 146 and permission of instructor. Open to all music majors and required of potential composition majors; the emphasis of this class will be on simple rhythmic and melodic studies.

MUSC 315 Counterpoint I

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 246. This class concentrates on two-part writing, canons, species, exercises, short two-voiced pieces and inventions.

MUSC 316 Counterpoint II

Semester course; 3 lecture hours. 3 credits. Prerequisite: MHIS 246. Availability contingent upon student demand and faculty resources. Three- and four-part writing forms based on the chorale; contrapuntal variation forms and fugue will be studied.

MUSC 406 Orchestration

Semester course; 3 lecture hours. 3 credits. No degree credit for graduate composition majors. Prerequisite: MHIS 246. Application of idiomatic scoring devices for orchestral instruments and voices in both large and small combinations.

Courses in music education (MUED)

MUED 290 Introduction to Music in General Education

Semester course; 3 lecture hours. 3 credits. The role of music in general educational curricula with emphasis on the historical, philosophical and sociological aspects of music education, learning theories as they apply to music, concepts of curriculum and music in the educational environment. Writing intensive.

MUED 383 Observation in Music Education

Semester course; 2 laboratory hours. 1 credit. Prerequisite: MUED 290. Observations and field experiences in public/private schools and in class discussion and analysis of observed techniques and procedures.

MUED 391 Processes of Music Education

Semester course; 3 lecture hours. 3 credits. Prerequisite: MUED 290. Study of current methods and materials of music in education. Orff, Dalcroze, Kodaly, Manhattanville and other modern music education systems will be discussed, observed and demonstrated.

MUED 392 Conducting and Rehearsal Techniques

Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. Prerequisites: APPM 381 and MUED 290, or permission of instructor. Development of enhanced conducting and rehearsal skills for school instrumental or choral groups. Emphasis on developing conducting technique, pacing, selecting and arranging appropriate materials and age appropriate musical goals.

MUED 483 Special Workshop in Music Education

Semester course; 0.5-3 credits. Flexible semester courses on selected aspects of music education. See the Schedule of Classes for specific offerings each semester.

Department of Painting and Printmaking

Richard Roth

Professor and Department Chair (1999)
B.F.A. The Cooper Union for the Advancement of Science and Art
M.F.A. 1977 Tyler School of Art of Temple University

Faculty and students in the Department of Painting and Printmaking work together in a professional and creative learning environment. The curriculum enables students to adopt a specialized focus within the discipline and use elective options to pursue other areas of interest in the School of the Arts, the university and the community. It also permits students to tailor a course of study suited to their professional and personal ambitions. The undergraduate program provides students opportunities for concentrated experiences in both practice and theory as a foundation for independent exploration and artistic development.

Classroom discussions invite students to examine a range of contemporary critical issues, which enables them to understand their own studio work as part of the historical continuum. As students develop their skills in critical analysis they are challenged to articulate and justify their ideas both visually and verbally.

The size and diversity of the faculty guarantees exposure to a plurality of ideas and stylistic approaches. In addition, the department's visiting artist program brings to campus leading figures in the world of contemporary art for discussions of their work, critiques of student work and workshops.

Degree requirements in painting and printmaking

	credits
Studios	
Foundation program	14
Sculpture or crafts	4
Sculpture	4
Painting	16
Drawing	12
Printmaking	12
Senior seminar	2
General education	
ENGL 101, 200 Writing and Rhetoric Workshop I, II	6
Literature	6
Art history	15
Approved electives to include three credits in the social/behavioral sciences, three credits in mathematics* and four credits in laboratory science	13
Open electives	11
Painting and printmaking electives	10
	125

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school Algebra II or Geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Minor in painting and printmaking

Successful completion of the Art Foundation Program is a prerequisite for the minor, which consists of at least 18 credits in painting and printmaking courses. Of these

18, at least nine credits must be in upper-level courses.

Courses in painting and printmaking (PAPR)

The following graduate courses may be taken by undergraduates for degree credit: PAPR 525 and PAPR 527, 528. See the Graduate and Professional Programs Bulletin for course descriptions.

PAPR 155, 156 Drawing and Painting, Basic

Semester courses; 3 studio hours. 1, 1 credit. Introduction to painting with emphasis on learning basic techniques. Discussion of materials and their use. Models, both nude and clothed, are used.

PAPR 203, 204 Painting and Design, Basic

Semester courses; 9 studio hours. 3, 3 credits. Offered only in summer school. Painting and structure are discussed in terms of space, form and content. Work may be carried on out- or indoor.

PAPR 205 Painting, Basic

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. An introduction to the use of paints with an emphasis on the organization of the artistic image, through the use of plastic form and color, coupled with analysis of historical and contemporary work.

PAPR 207 Painting Techniques

Semester course; 2 lecture and 6 studio hours. 4 credits. An investigation of pigments, glazes, underpainting, mixed media, materials and other studio techniques.

PAPR 209 Materials: Printmaking

Semester course; 2 lecture and 6 studio hours. 4 credits. An introduction to three principal printmaking techniques: etching, lithography and screenprinting.

PAPR 214 Printmaking, Basic

Semester course; 1 lecture and 6 studio hours. 3 credits. Offered only in summer school. Fundamentals of printmaking. Introduction of basic problems of techniques and composition.

PAPR 221 Drawing, Basic

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of six credits. Drawing instruction with attention to extension of the student's knowledge of the tools of drawing. Materials and techniques will be related to pictorial organization.

PAPR 223, 224 Drawing, Basic

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Offered only in summer school. Course introducing drawing fundamentals and spatial relationships. Concern is given to materials and the development of the students' visual perceptions.

PAPR 255-256 Drawing and Painting, Basic

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Development of basic skills; exploring structure, color, form and image. Students will be exposed to class critiques as a means of analyzing their creative works.

PAPR 303, 304 Painting, Intermediate

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Offered only in summer school. Prerequisites:

Three credits of basic painting or permission of instructor. Primary emphasis on the development of an individual direction in the context of contemporary ideas and images in painting.

PAPR 305 Painting, Intermediate

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisites: Four credits of basic painting or permission of instructor. Primary emphasis on the development of an individual direction in the context of contemporary ideas and images in painting.

PAPR 312 Printmaking, Intermediate (Lithography)

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of basic printmaking or permission of instructor. Investigation of techniques and technical printing problems. Stones and plates are used.

PAPR 313 Printmaking, Intermediate (Etching)

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of basic printmaking or permission of instructor. Techniques and technical problems in the printmaking area are investigated.

PAPR 314 Printmaking, Intermediate (Screenprinting)

Semester course; 1 lecture and 6 studio hours. 3 credits. Offered only in summer school. Prerequisite: Basic or beginning printmaking. Investigation of techniques and technical problems in the printmaking area.

PAPR 315 Printmaking, Intermediate (Etching)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 209 or permission of instructor. Investigation of etching printmaking, drypoint, engraving, aquatint, soft grounds and related techniques.

PAPR 317 Printmaking, Intermediate (Lithography)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 209 or permission of instructor. Investigation of techniques and technical printing problems in lithographic printing process from stones and plates.

PAPR 319 Printmaking, Intermediate (Screenprinting)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisite: PAPR 209 or permission of instructor. An investigation of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 321 Drawing, Intermediate

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of six credits. Prerequisites: Three credits of basic drawing or permission of instructor. Drawing for advanced students with special emphasis on creative response to the drawing as a work of art.

PAPR 324 Drawing, Intermediate

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of basic drawing or permission of instructor. Drawing for intermediate students with emphasis on problematic thinking and dealing with drawing as an aesthetic form.

PAPR 326 Color

Semester course; 3 lecture hours. 3 credits. A course examining the concepts governing the use of color. Historical and contemporary concepts and methods of application will be explored.

PAPR 329 Life Drawing

Semester course; 6 studio hours. 3 credits. May be repeated for a maximum of nine credits. Prerequisite: Foundation drawing. Explores the structural and muscular systems of the human body with emphasis upon proportional relationships, chiaroscuro, contour, volume and foreshortening.

PAPR 355, 356 Drawing and Painting, Intermediate

Semester course; 9 studio hours. 3, 3 credits. Prerequisites: Three credits of basic drawing or painting or permission of instructor. Intermediate instruction in drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 403, 404 Painting, Advanced

Semester courses; 1 lecture and 6 studio hours. 3, 3 credits. Offered only in summer school. Prerequisites: Three credits of intermediate painting or permission of instructor. More ambitious projects with the aim of developing in the senior student a highly professional approach and achievement in his or her work. Individual as well as group discussions.

PAPR 405 Painting, Advanced

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: Four credits of intermediate painting or permission of instructor. More ambitious projects with the aim of developing in senior students a highly professional approach and achievement in their work. Individual as well as group discussions.

PAPR 412 Printmaking, Advanced (Lithography)

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of intermediate printmaking or permission of instructor. Specialization in one medium. Aesthetic suitability of the design to a particular medium is emphasized.

PAPR 413 Printmaking, Advanced (Etching)

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of intermediate printmaking or permission of instructor. Concentration on one medium with emphasis on creative techniques.

PAPR 414 Printmaking, Advanced (Screenprinting)

Semester course; 1 lecture and 6 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of intermediate printmaking or permission of instructor. Cut, hand-drawn and photographic stencil techniques are explored. Printing will be done on a variety of surfaces.

PAPR 415 Printmaking, Advanced (Etching)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: Four credits of intermediate printmaking or permission of instructor. Specialization in one medium with emphasis upon technical research and aesthetic suitability of the design to the particular medium used.

PAPR 417 Printmaking, Advanced (Lithography)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: Four credits of intermediate printmaking

or permission of instructor. Further investigation of techniques and technical printing problems in the lithographic printing process from stones and plates.

PAPR 419 Printmaking, Advanced (Screenprinting)

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of 20 credits. Prerequisites: Four credits of intermediate printmaking or permission of instructor. Further exploration of cut, hand-drawn and photographic stencil techniques and printing on a variety of surfaces.

PAPR 421 Drawing, Advanced

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of 15 credits. Prerequisites: Three credits of intermediate drawing or permission of instructor. A studio for drawing with individual criticism. Special attention is given to contemporary concepts.

PAPR 423 Experimental Printmaking

Semester course; 2 lecture and 6 studio hours. 4 credits. May be repeated for a maximum of eight credits. Prerequisites: Three credits of intermediate printmaking or permission of instructor. Relief printing, collographs, monoprints, photoengraving and mixed media will be investigated.

PAPR 424 Drawing, Advanced

Semester course; 9 studio hours. 3 credits. Offered only in summer school. Prerequisites: Three credits of intermediate drawing or permission of instructor. A studio drawing course set up with individual criticism dealing with contemporary concepts.

PAPR 448-449 Mural Painting

Continuous course; 2 lecture and 6 studio hours. 4-4 credits. Prerequisite: Permission of instructor. An investigation of the concepts and procedures involved in mural painting. The class will execute at least two murals during the year.

PAPR 455-456 Drawing and Painting, Advanced

Continuous course; 9 studio hours. 3-3 credits. Prerequisites: Three credits of intermediate drawing or painting or permission of instructor. Advanced instruction in drawing and painting. Models, both nude and clothed, and still lifes are used.

PAPR 490 Senior Seminar

Semester course; 3 lecture hours. 2 credits. Information to help graduating seniors in the department of painting and printmaking meet the professional requirements involved in exhibiting and promoting their creative work and in functioning as an artist. Writing intensive.

PAPR 491 Topics in Painting and Printmaking

Semester course; 1-4 credits. May be repeated with different topics for a maximum of 12 credits. Topical course focusing on creative expression and research in the areas of painting and printmaking. See the Schedule of Classes for specific topics to be offered.

PAPR 690 Graduate Seminar

Semester course; 1, 3 lecture hours. 1, 3 credits. May be repeated. Degree requirement for graduate students in the Department of Painting and Printmaking. Weekly seminar for the purpose of discussion of recent artistic developments in painting and printmaking. Critiques dealing with student work will take place.

Department of Photography and Film

Jim Long

Professor and Department Chair (1981)
B.F.A. University of Kansas
M.Arch. 1979 University of Kansas

The Department of Photography and Film contributes to both the School of the Arts and the university as a whole. The department offers a variety of basic, intermediate and advanced photography and filmmaking classes.

Beginning courses cover fundamentals and techniques and develop the visual senses. Advanced courses expand on the student's knowledge and help the student assemble a well-developed portfolio.

Admission criteria

Students seeking admission to the Bachelor of Fine Arts degree program in photography and film apply to the School of the Arts and enter the Art Foundation Program. During the final semester of the Art Foundation year, students submit a portfolio application that is reviewed by the Department of Photography and Film.

Prior to graduation

A minimum of 120 credits are required for completion of the program. Forty-five credits must be completed in 300-, 400- and/or 500-level courses. The final 30 credits must be completed at VCU.

Majors, concentrations and specialty tracks

Photography

Freshman year – fall	credits
ARTF 151 Foundation Studio	4
ARTF 161 Figure Drawing I	1
ARTF ____ Technical laboratory elective*	1
ARTF ____ Technical laboratory elective*	1
ARTH 102 Contemporary Issues in Art and Design	3
ENGL 101 Writing and Rhetoric Workshop I	3
Elective	3
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	16
Freshman year – spring	
ARTF 152 Foundation Studio	4
ARTF 162 Perspective and Three-dimensional Line Drawing (5 weeks)	1

ARTF ____ Technical laboratory elective*	1
ARTF ____ Technical laboratory elective*	1
ARTH 104 Survey of Western Art	3
ENGL 200-level literature (201-206)	3
Elective	3
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	16

Sophomore year – fall

PHTO 380 Digital Photography I	3
PHTO 243 Photography	3
PHTO 260 Photographic Sequencing	3
PHTO 233 Elements of the Moving Image	3
ENGL 200-level literature (201-206)	3
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	16

Sophomore year – spring

PHTO 341 Intermediate Photography	3
PHTO 305 The Zone System	3
PHTO 381 Digital Photography II	3
ENGL 200 Writing and Rhetoric Workshop II	3
Elective	3
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	16

Junior year – fall

PHTO 445 Color Photography	3
PHTO 307 Photographic Processes and Techniques	3
PHTO ____ Major area of concentration	3
ARTH 472 History of Photography	3
General education elective (quantity and form)	3
	<hr/>
	15

Junior year – spring

PHTO 350 Concepts in Photography	3
PHTO 435 Professional Photographic Practices	3
PHTO ____ Major area of concentration	3
PHTO ____ Major area of concentration	3
General education elective (humanities)	3
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	15

Senior year – fall

PHTO 420 Senior Portfolio	3
PHTO 441 Studio Photography	3
PHTO ____ Major area of concentration	3
ARTH 270 History of the Motion Picture	3
General education elective (social science)	3
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	15

Senior year – spring

PHTO 420 Senior Portfolio	3
PHTO ____ Major area of concentration	3
General education elective (science and laboratory)	4
Elective	2
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	12

Total credits	120
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Major areas of concentration

PHTO 306 Post Visualization	
PHTO 309 View Camera Operation and Technique	
PHTO 351 Portrait Photography	
PHTO 442 Location Photography	
PHTO 445 Color Photography (may be repeated once)	
PHTO 491 Topics in Photography and Film	
PHTO 495 Photography or Film Internship (permission of chair required)	
PHTO 500 Photographic Studio and Seminar	

Note: 45 credits in 300-500 level courses are required to graduate. The last 30 credits must be earned from VCU.

- * Recommended ARTF Technical Laboratories
- ARTF 163 Two-dimensional Design Methods
- ARTF 164 Color Research Laboratory
- ARTF 171 Digital Laboratory
- ARTF 172 Digital Photography

Filmmaking

Freshman year – fall credits

ARTF 151 Foundation Studio	4
ARTF 161 Figure Drawing I	1
ARTF ____ Technical laboratory elective*	1
ARTF ____ Technical laboratory elective*	1
ARTH 102 Contemporary Issues in Art and Design	3
ENGL 101 Writing and Rhetoric Workshop I	3
Elective	3
	<hr/>
	16

Freshman year – spring

ARTF 152 Foundation Studio	4
ARTF 162 Perspective and Three-dimensional Line Drawing (5 weeks)	1
ARTF ____ Technical laboratory elective*	1
ARTF ____ Technical laboratory elective*	1
ARTH 104 Survey of Western Art	3
ENGL 20_ Literature (201-206)	3
Elective	3
	<hr/>
	16

Sophomore year – fall

PHTO 380 Digital Photography I	3
PHTO 243 Photography	3
PHTO 260 Photographic Sequencing	3
PHTO 233 Elements of the Moving Image	4
ENGL 200-level literature (201-206)	3
	<hr/>
	16

Sophomore year – spring

PHTO 392 Film Animation I	3
PHTO 360 Digital Filmmaking I	3
PHTO ____ Major area of concentration	3
ARTH 271 History of the Motion Picture	3
ENGL 200 Writing and Rhetoric Workshop II	3
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	15

Junior year – fall

PHTO 375 Filmmaking I	3
PHTO 377 The Film Image	3
ARTH 270 History of the Motion Picture	3
General education elective (quantity and form)	3
Elective	2
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	14

Junior year – spring

PHTO 376 Filmmaking II	3
PHTO ____ Major area of concentration	3
PHTO ____ Major area of concentration	3
General education elective (science and laboratory)	4
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	13

Senior year – fall

PHTO 481 Filmmaking III	3
PHTO 484 Advanced Film Production Studio	3
PHTO 370 Filmmaker as Director	3
ARTH 474 Studies in Film	3
General education elective (humanities)	3
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	15

Senior year – spring

PHTO 420 Senior Portfolio	3
PHTO 484 Advanced Film Production Studio	3
PHTO ____ Major area of concentration	3
PHTO ____ Major area of concentration	3
General education elective (social science)	3
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	15

Total credits	120
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Major areas of concentration

PHTO 381 Digital Photography II	
PHTO 393 Film Animation II	
ARTH 470 History of Animated Feature Film	
ARTH 471 Film Theory	
ARTH 472 History of Photography	
PHTO 475-476 Filmmaking Workshop	
PHTO 489-490 Motion Picture Special Effects	
PHTO 491 Topics in Photography and Film	
PHTO 495 Photography and Film Internship (permission of chair required)	
PHTO 500 Photographic Studio and Seminar	

Recommended electives

- CARD ____ Courses in video and animation
- DANC 319, 320 Video/Choreography Workshop
- ENGL 305 Creative Writing: Genres
- ENGL 381 Fiction into Film
- ENGL 426 Advanced Playwriting
- THEA 203-204 Movement for the Actor
- THEA 311-312 Advanced Movement for the Actor

- * Recommended ARTF technical laboratories
- ARTF 163 Two-dimensional Design Methods
- ARTF 164 Color Research Laboratory
- ARTF 171 Digital Laboratory
- ARTF 172 Digital Photography

Note: 45 credits in 300-500 level courses are required to graduate. The last 30 credits must be earned from VCU.

Courses in photography and film (PHTO)

PHTO 233 Elements of the Moving Image

Semester course; 4 lecture hours. 4 credits. A survey of new media and their origins. An exploration of this visual phenomena and its relationship to modern society.

PHTO 243 Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Adjustable camera is required. Study of fundamental camera techniques and basic photographic processes in relation to visual communication. An emphasis will be placed on photography's expressive possibilities.

PHTO 245 Design Photography I

Semester course; 2 lecture and 3 studio hours. 3 credits. For communication art and design majors only or permission of instructor. A comprehensive beginning class covering an introduction to the camera, the process of exposure, developing, and black-and-white printmaking.

PHTO 260 Photographic Sequencing

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or PHTO 245. Exploration and development of photographic sequencing abilities in conjunction with matching image based ideas to other forms of communication. Application of editing sequences in relation to personal bodies of work.

PHTO 305 The Zone System

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHTO 341 and 350, or permission of instructor. Students learn to previsualize the photographic image through controlled exposure and film development techniques.

PHTO 306 Post Visualization

Semester course; 3 lecture hours. 3 credits. Prerequisite: PHTO 305 or permission of instructor. Students will learn practical applications of choosing the correct materials and techniques needed to produce a professional quality photographic print.

PHTO 307 Photographic Processes and Techniques

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or 245 or permission of instructor. Various alternative photographic processes will be explored. Emphasis is placed upon technical expertise and creation of a body of work incorporating these various processes.

PHTO 309 View Camera Operation and Technique

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 243 or 245 or permission of instructor. A course in understanding and using the 4x5 view camera for optimum photographic results. Emphasis is on how the camera functions, the use of Polaroid materials, and developing and printing larger format negatives to produce high quality prints.

PHTO 341 Intermediate Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 245 or permission of the instructor. Emphasis is placed on expanding the student's ability to express ideas photographically.

PHTO 350 Concepts in Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 341 or permission of instructor. Students utilize the visual and technical skill mastered in previous courses to explore today's contemporary trends of photographic expression. Emphasis will be placed on developing an individual style.

PHTO 351 Portrait Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 345 Design Photography or PHTO 350 Intermediate Photography. Students explore the various visual possibilities of the use of portrait photography.

PHTO 360 Digital Filmmaking I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 380. Surveys the digitally based studies including computer animation, computer imaging, digital film and video, networked computing, interactive multimedia and related areas.

PHTO 361 Digital Filmmaking II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 380 and PHTO 360. Surveys the procedural, technical and creative applications of the digital environment for the preproduction, production and postproduction phases in the making of a film.

PHTO 370 Filmmaker as Director

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 376 or permission of instructor. Develop a methodology for working with actors in a film production, by arranging auditions, creating an environment for improvisation and analyzing an actor's performance. Learn how to integrate a performance into the total filmmaking process.

PHTO 375 Filmmaking I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 233. Techniques for production of short silent films with emphasis on visual language.

PHTO 376 Filmmaking II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 375, PHTO 233. Techniques for production of short films with emphasis on light as the primary expressive tool.

PHTO 377 The Film Image

Semester course; 3 lecture hours. 3 credits. May be repeated up to nine credits. An examination of production techniques and problems encountered by the filmmaker in creating the motion picture image. A selected number of narrative, documentary, experimental and animated films are viewed as source material and dealt with from a production point of view. The films chosen for discussion vary from semester to semester.

PHTO 380 Digital Photography I

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: CARD 207 or permission of instructor. Students edit, manipulate and print their photographically derived images through the use of current image editing software.

PHTO 381 Digital Photography II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 380 or permission of instructor. Using photographic image-editing software, students learn to achieve accurate color output through color calibration, printing inks and color separations.

PHTO 392 Film Animation I

Semester course; 2 lecture and 3 studio hours. 3 credits. Techniques for the production of short animated films.

PHTO 393 Film Animation II

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 392. Advanced techniques for the production of a short animated film.

PHTO 420 Senior Portfolio

Semester course; 2 lecture and 3 studio hours. 3 credits; may be repeated up to six credits. Prerequisite: Senior status in photography and film concentration. To be taken in the senior year. Critical analysis and development of the student's exit portfolio with emphasis on a consistent visual style with thematic concepts.

PHTO 435 Professional Photographic Practices

Semester course; 3 lecture hours. 3 credits. The study of vocabulary, procedures and working realities specific to the occupations of photography and film.

PHTO 441 Studio Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 341, 350, 309 or permission of instructor. A course that explores various studio applications of photography through the utilization of tungsten and strobe lighting. Lectures and studio assignments explore table top photography.

PHTO 442 Location Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: PHTO 309, 341, 350 or permission of instructor. A course that explores the technical, aesthetic and logistic experience of a photographer working on location.

PHTO 445 Color Photography

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for maximum of six credits. Prerequisite: PHTO 350 or permission of instructor. The creative use of color in photography through experience of negative to positive printing.

PHTO 475-476 Filmmaking Workshop

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Prerequisite: Permission of instructor. The production of a motion picture with the assistance of students in the various production crew roles.

PHTO 481 Filmmaking III

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisite: PHTO 376. Techniques for production of short film projects in 16mm format with emphasis on sound as an integral part of production.

PHTO 484 Advanced Film Production Studio

Semester course; 2 lecture and 3 studio hours. 3 credits. May be repeated for a maximum of nine credits. Prerequisites: PHTO 481 and permission of instructor. The production of an advanced motion picture project.

PHTO 489-490 Motion Picture Special Effects

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Prerequisite: PHTO 376 or permission of instructor. An exploration of special effects for film production.

PHTO 491 Topics in Photography and Film

Semester course; variable hours. 1-4 credits. May be repeated with different topics for a maximum of 12 credits. Prerequisite: Permission of instructor. A seminar and/or workshop offered on a variety of photography

or film issues not included in the regular curriculum. See schedule of classes for specific topics covered each semester.

PHTO 495 Photography and Film Internship

Semester course; 10 hours per week for a total of 150 hours of professional work experience. 3 credits. Prerequisite: Consent of coordinator and department chair. Supervised practical work experiences are coordinated with professionals in the field of photography or film.

PHTO 500 Photographic Studio and Seminar

Semester course; 1 lecture and 6 studio hours. 3 credits. Prerequisite: Permission of instructor. A seminar that examines the technical and aesthetic components of photography and filmmaking processes and the language and theories of photography and film criticism.

Department of Sculpture

Vacant

Department Chair

The Department of Sculpture's mission is to create an environment of high expectation regarding self-motivation, intellectual capacity and responsibility. Students explore technology's parameters and discover applications to new and traditional modes of expression. By encouraging students to take a wide range of courses within the university, the department continues to stress the links between art, science, the humanities and the conditions of the world. The department's goal is to provide students with the seeds of discernment, vocabulary, and skills of analysis and synthesis to become participants in the dialogue of contemporary society. Within this context, students strive to measure up to the best performances modeled for them by their peers and by faculty who engage in vital research.

Degree requirements in sculpture

	credits
Studios	
Art Foundation Program	14
Sculpture	36
(No more than four credits of SCPT 491 Topics in Sculpture will apply toward this requirement. Senior Seminar is required.)	
Studio courses from any School of the Arts department other than Sculpture*	14
General education	
Art history	15
ENGL 101, 200 Writing and Rhetoric Workshop I, II	6
Literature	6

Approved electives to include three credits in social sciences, three credits in mathematics,** three credits in ethics and four credits in laboratory science 13

Open electives 20

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* At least six credits of this studio course work must be above the introductory level in one department.

** In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Minor in sculpture

Successful completion of the Art Foundation Program is a prerequisite for the minor, which consists of at least 18 credits in sculpture. Of these 18, at least nine credits must be in upper-level courses, and 16 credits must be in SCPT 211, 212, SCPT 311, 312 or SCPT 411, 412.

Courses in sculpture (SCPT)

SCPT 209, 210 Introduction to Sculpture
 Semester courses; 2 lecture and 3 studio hours. 3, 3 credits. The course will offer an opportunity for students to work with some of the ideas and materials of sculpture through slides, lecture and studio involvement. Non-art majors only.

SCPT 211, 212 Sculpture
 Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. The primary goal of this course is the effective expression of ideas. The student is introduced to the basic tools, materials and techniques with attention given to problem solving.

SCPT 217, 218 Sculptural Concepts
 Semester courses; 3 lecture and 3 studio hours. 4, 4 credits. Prerequisite: Permission of instructor. A study of contemporary technology, philosophy, criticism and their relation to material resources and technical practices.

SCPT 311, 312 Sculpture
 Semester courses; 3 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of eight credits. The emphasis in this course is on creative independence. The student is encouraged to utilize a variety of materials in order to express his ideas.

SCPT 313, 314/413, 414 Dimensional Concepts
 Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. An opportunity for the sculpture student to extend and expand upon traditional methods of expression and to explore new areas.

SCPT 411, 412 Sculpture
 Semester courses; 2 lecture and 6 studio hours. 4, 4 credits. May be repeated for a maximum of 16 credits. The majority of the student's activities occur in the studio with emphasis on the development of a personal style.

SCPT 417 Seminar in Contemporary Sculpture
 Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. A forum for consideration and discussion of recent developments.

SCPT 419 Professional Studio Practicum
 Semester course; 9 studio hours. 3 credits. May be repeated. Prerequisite: Permission of departmental chair. A studio class that provides a continuation of the student's work in sculpture. This course will be recorded as an elective for a sculpture major.

SCPT 491 Topics in Sculpture
 Semester course; 1-4 credits. May be repeated for a maximum of 16 credits. Prerequisite: Permission of instructor. A seminar or workshop on a selected issue or topic in the field of sculpture. See the Schedule of Classes for specific topic(s) to be offered each semester.

SCPT 500, 600 Graduate Sculpture
 Semester course; 4, 8 or 12 studio hours. 2, 4 or 6 credits. May be repeated. Emphasis on individual creative production with periodic exposure of student's work and ideas to the critical attention of the teaching faculty of the department of sculpture and other graduate students.

SCPT 517 Seminar in Contemporary Sculpture
 Semester course; 3 lecture hours. 3 credits. May be repeated for a maximum of 12 credits. A forum for consideration and discussion of recent developments in the field.

SCPT 591 Topics in Sculpture
 Semester course; variable; 1-4 credits. May be repeated for a maximum of 12 credits. This course will explore selected topics of current interests or needs relative to sculpture. See Schedule of Classes for specific topics to be offered each semester.

Department of Theatre

David S. Leong

Professor and Department Chair (1996)
 B.A. 1973 University of New Hampshire
 M.F.A. 1975 University of North Carolina,
 Greensboro

The mission of the Department of Theatre is to educate and train students as theatre professionals and/or academicians in the field of performance, design/technology or theatre pedagogy.

In fulfilling its mission, the Department of Theatre provides students with the professional and cultural foundations essential for achieving the highest standards of the art. Applicants are admitted based on demonstration of ability, genuine interest determined during an interview, and audition and/or portfolio presentation.

Student participation in both credit and non-credit bearing department activities may be required. Students matriculating in School of the Arts degree programs are bound by the policies and procedures stipulated in this bulletin and in any other current handbook or policy document adopted by the individual programs.

The department offers two B.F.A. degrees: one in theatre with emphasis on either performance or design/technical and stage management; the other in theatre education, which leads to the certification required for teaching theatre, speech and English in the public schools.

Because of the environment that exists in these preprofessional programs, all aspects of theatre — as art, craft, business and education — are experienced together. The curriculum immerses students in the practicalities of theatre. Throughout the four years, the performer works daily with voice, body and imagination, while the designer/technician is involved in studio classes and practical application. Prospective theatre educators engage in intensive teacher training activities that lead to certification.

The department also serves students throughout the university with offerings in speech communication.

The Department of Theatre employs 23 faculty and staff and enrolls 230 undergraduate and 40 to 50 full-time graduate students. Theatre VCU produces four to six mainstage productions and numerous graduate and undergraduate directing projects.

M.F.A. in theatre pedagogy

Theatre VCU offers a specialized M.F.A. degree in theatre pedagogy for students preparing to enter the field of teaching at the university or college level. The program boasts over 50 alumni who currently hold faculty positions at universities and colleges, as well as professional training programs, or key positions in education departments of major LORT theatres.

VCU offers the M.F.A. degree in theatre pedagogy with areas of specialization in acting and directing, dramatic literature and dramaturgy, stage voice and speech, movement and stage combat, scene design and costume design. The program allows the student to work with a faculty mentor in planning a two- or three-year curriculum integrating the practical application of

teaching with that of well-rounded scholarly/academic training.

Upon application and interview, a two- or three-year program is designed by the director of graduate studies to aid the candidate in planning a curriculum that best suits his or her area of interest. The specially designed program effectively combines classes in pedagogy, scholarship, academics, rehearsal and performance, and the business of teaching. Additionally, candidates receive professional training in the art of job preparation (writing cover letters, resumes and teaching philosophies, and developing curricula, etc.) During their residency, candidates also are required to submit an article for publication and create a course syllabus.

For additional information, see the Graduate and Professional Programs Bulletin on the Web: <http://www.vcu.edu/bulletins>.

Degree requirements – B.F.A. in theatre

Performance emphasis

	credits	
	fall	spring
First year (introduction/overview)		
THEA 103/104 Stagecraft/Costume Construction	3	3
THEA 113-114 Acting I	3	3
THEA 211-212 Introduction to Drama (WI)	3	3
ARTH 103 or 104 Survey of Western Art	3	-
ARTH ___ Non-Western Art History	-	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
MATH ___ General education mathematics elective*	3	-
Social or behavioral science elective and laboratory	-	4
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	18	16

Second year (building blocks of craft)

THEA 201-202 Stage Voice and Speech	3	3
THEA 203-204 Movement for the Actor	3	3
THEA 213-214 Acting II	3	3
THEA 221/THEZ 221L Introduction to Scene Design and Laboratory or THEA 227/THEZ 227L Basic Stage Costuming and Makeup and Laboratory	4	-
THEA 228/THEZ 228L Basic Stage Costuming and Makeup and Laboratory or THEA 229/THEZ 229L Introduction to Lighting Design and Laboratory	-	4
ENGL 200 Writing and Rhetoric Workshop II	3	-

Natural science and laboratory general education elective	-	4
	<hr/>	<hr/>
	16	17

Third year (advanced building blocks: periods, places, styles)**

THEA 301 Advanced Stage Voice and Speech (Dialects)	3	-
THEA 302 Advanced Stage Voice and Speech (Elevated Text)**	-	3
THEA 307-308 History of the Theatre	3	3
THEA 311-312 Advanced Movement for the Actor (Stage Combat)**	3	3
THEA 313 Actor's Studio I (Acting Theory)	3	-
THEA 314 Actor's Studio I (Style)**	-	3
THEA 303 Black Theatre or THEA 403, 404 History of Dramatic Literature or THEA 423, 424 Modern Drama	3	3
Elective	2	2
	<hr/>	<hr/>
	17	17

Fourth year (integration and application)***

THEA 315 Audition Technique**	3	-
THEA 413 Actor's Studio II (Period Styles)	3	-
Ethics general education elective	3	-
Elective/internship***	3	3
THEA 414 Actor's Studio III (Acting for the Camera)** or Internship***	-	3
THEA 415 The Business of the Theatre** or Internship***	-	3
THEA 441 New York Showcase** (by audition) or Internship*** or any elective	-	3
	<hr/>	<hr/>
	12	12

Total credits 125

* In accordance with the university's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

** Because training is cumulative and safety is an issue in certain courses (both physical safety [as in stage combat] and emotional safety [as in advanced acting studios]), students will not be allowed to enroll in certain advanced courses until they are able to demonstrate an advanced level of proficiency in basic skills. These courses include THEA 302 (prerequisite 301), 312 (prerequisite 311), 314, 315, 413, 414, 415 and 441 (all prerequisite 313). In order to enroll in these advanced classes, students must first score a "B" or better in the specified prerequisite course (or, in the case of extenuating circumstances, otherwise gaining permission from the instructor).

*** Students also may elect, with consultation and approval from their adviser, to have one semester of their senior year as a professional internship at an approved theatre or equivalent study abroad.

Scene design/technical production emphasis

	credits	
	fall	spring
First year		
THEA 103/104 Stagecraft/Costume Construction	3	3
THEA 113-114 Acting I	3	3
ARTF Technical laboratory electives	2	2
THEA 211-212 Introduction to Drama	3	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
SPCH 121 Effective Speech	-	3
Natural science and laboratory elective	4	
Social/behavioral science elective	-	3
	<hr/>	<hr/>
	18	17
Second year		
ARTH 103 or 104 Survey of Western Art and one Non-Western Art History	3	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
THEA 221/THEZ 221L Introduction to Scene Design and Laboratory	4	-
THEA 229/THEZ 229L Introduction to Lighting Design and Laboratory	-	4
THEA 223 Practicum in Theatre Technology** or THEA 323 Advanced Theatre Technology	6	6
Mathematics elective*	3	-
	<hr/>	<hr/>
	16	16
Third year		
THEA 227-228 Basic Stage Costuming and Makeup	3	3
THEA 307-308 History of Theatre	3	3
THEA 403 or 404 History of Dramatic Literature or THEA 423-424 Modern Drama or THEA 303 Black Theatre	3	3
Design electives***	6	6
	<hr/>	<hr/>
	15	15
Fourth year		
ENGL ___ Shakespeare elective	3	-
Design electives***	6	9
Electives ⁺	2	6
Ethics elective	3	-
	<hr/>	<hr/>
	14	15
Total		126

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from

the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

** Practicum courses consist of working in the Scene Shop under the supervision of the technical director during the second and third years. This requirement may be accompanied by morning teaching sessions in the skills required. All scenic design majors are required to work in the Scene Shop on the shows produced by Theatre VCU. This gives them the opportunity to put into practice those skills learned in classes. Those assignments will be determined by the faculty supervisor.

*** Design electives are to be chosen with advice from your faculty adviser. They may include the following classes: THEA 305-306 Advanced Scenic Design I-II; THEA 505-506 Scene Design; THEA 508 Scene Painting; THEA 321-322 Research Techniques for Costume Design; THEA 325 Stage Management/THEA 429 Advanced Lighting/THEA 327 Theatrical Drafting or THEA 407 Advanced Scenic Techniques. Electives also may consist of classes from other departments of the School of the Arts such as sculpture, furniture building, jewelry, architecture and interior design. Students may be asked to act as a design assistant for a faculty designer or to design one aspect of one of Theatre VCU's seasons. This opportunity may be taken as a senior seminar or as a design elective.

⁺ Students, in consultation with their adviser, also may elect to have one semester of their senior year as a professional internship at an approved theatre.

Costume design/technical production emphasis

	credits	
	fall	spring
First year		
THEA 103/104 Stagecraft/Costume Construction	3	3
THEA 113-114 Acting I	3	3
ARTF Technical laboratories	1	1
THEA 211-212 Introduction to Drama	3	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
SPCH 121 Effective Speech	-	3
Natural science and laboratory elective	4	
Social/behavioral science elective	-	3
	<hr/>	<hr/>
	17	16
Second year		
ARTH 103 or 104 Survey of Western Art	3	-
ENGL 200 Writing and Rhetoric Workshop II	-	3
THEA 227-228 and THEZ 227L and 228L Basic Stage Costuming and Makeup and Laboratory	4	4
THEA 309, 310 History of Costume	3	3

ARTF Technical Laboratories	1	1
FASH 203-204 Patternmaking or FASH 202 Draping	3	3
Electives	3	2
	<hr/>	<hr/>
	17	16

Third year

THEA 307-308 History of Theatre	3	3
THEA 221 Introduction to Scene Design	3	-
THEA 229 Introduction to Lighting Design	-	3
THEA 403, 404 History of Dramatic Literature or THEA 423, 424 Modern Drama or THEA 303 Black Theatre	3	3
ARTH ___ Non-Western art history elective	3	-
Design electives**	3	6
	<hr/>	<hr/>
	15	15

Fourth year

ENGL ___ Shakespeare elective	3	-
Design electives**	6	9
Electives***	-	3
Ethics	3	-
Mathematics elective*	3	-
	<hr/>	<hr/>
	15	12

Total

123

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school Algebra II or Geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

** Design electives are to be decided with a faculty adviser. They may include the following classes: THEA 305-306 Advanced Scenic Design I-II; THEA 505-506 Scene Design; THEA 508 Scene Painting; THEA 321-322 Research Techniques for Costume Design; THEA 325 Stage Management/THEA 429 Advanced Lighting/THEA 327 Theatrical Drafting or Advanced Scenic Techniques. Design electives also may consist of classes in other departments of the School of the Arts such as sculpture, furniture building, jewelry, architecture and interior design. Students may be asked to act as a design assistant for a faculty designer or to design one aspect of one of Theatre VCU's seasons. This opportunity may be taken as a senior seminar or as a design elective.

*** Students, in consultation with their adviser, also may elect to have one semester of their senior year as a professional internship at an approved theatre.

Lighting design/technical production

	credits	
	fall	spring
First year		
THEA 103, 104 Stage Craft/Costume Construction	3	3
THEA 113-114 Acting I	3	3
THEA 211-212 Introduction to Drama	3	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
ARTF Technical laboratories	2	2
Natural science and laboratory	-	4
Mathematics elective*	3	-
	<hr/>	<hr/>
	17	15

Second year

ARTH 103 or 104 Survey of Western Art and one Non-Western Art History	3	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
THEA 221 Introduction to Scene Design	3	-
THEA 229/THEZ 229L Introduction to Lighting Design and Laboratory	-	4
THEA 225/THEZ 225L Basic Stage Electronics – Lighting and Laboratory	4	-
THEA 325 Stage Management	-	3
THEA 323/324 Practicum in Advanced Theatre Technology/Stage Lighting	3	3
Elective	-	3
	<hr/>	<hr/>
	13	19

Third year

THEA 227-228 Basic Stage Costuming and Makeup	3	3
THEA 307-308 History of Theatre	3	3
THEA 403, 404 History of Dramatic Literature or THEA 423, 424 Modern Drama	3	3
THEA 327 Theatrical Drafting	3	-
THEA 323/324 Practicum in Advanced Theatre Technology/Stage Lighting	3	3
SPCH 121 Effective Speech	-	3
Social or behavioral science	-	3
	<hr/>	<hr/>
	15	18

Fourth year

THEA 429/THEZ 429L Advanced Lighting Design and Laboratory	4	-
ENGL ___ Shakespeare	3	-
Design electives**	-	9
Electives***	4	3
Ethics elective	3	-
	<hr/>	<hr/>
	14	12

Total

123

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" grade or higher in high school Algebra II or Geometry is exempted from the mathematics requirement. Students who

meet this requirement will select an elective to fulfill three credits.

** Design electives are to be chosen with advice from the faculty adviser. Students may be asked to act as a design assistant for a faculty designer or to design one aspect of one of Theatre VCU's season. This may be taken as a Senior Seminar or as a design elective.

*** Students may also elect in consultation with their adviser to have one semester of their senior year as a professional internship at an approved theatre.

All Lighting Design majors are required to work on the shows produced by Theatre VCU. This gives them the opportunity to put into practice those skills learned in classes. Those assignments will be determined by the faculty adviser.

Stage management/technical production emphasis

	credits	
	fall	spring
First year		
THEA 103/104 Stagecraft/Costume Construction	3	3
THEA 113-114 Acting I	3	3
THEA 211-212 Introduction to Drama	3	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
SPCH 121 Effective Speech	-	3
Stage management elective	3	3
ARTF Technical Laboratory	1	1
	<hr/>	<hr/>
	16	16

Second year

ARTH 103 or 104 Survey of Western Art and one Non-Western Art History	3	3
ENGL 200 Writing and Rhetoric Workshop II	-	3
Mathematics elective*	3	-
THEA 221 Introduction to Scene Design	3	-
THEA 227-228 Basic Stage Costuming and Makeup	3	3
THEA 229 Introduction to Lighting Design	-	3
Stage management elective	3	3
Social/behavioral science elective	3	-
Ethics elective	-	3
	<hr/>	<hr/>
	18	18

Third year

THEA 403 or 404 History of Dramatic Literature or THEA 423 or 424 Modern Drama or THEA 303 Black Theatre	3	3
THEA 307-308 History of the Theatre	3	3
THEA 361-362 Directing	3	3
THEA 325 Stage Management	3	-

Electives	-	5
Natural science elective and laboratory	4	-
	<hr/>	<hr/>
	16	14

Fourth year

ENGL ___ Shakespeare	3	-
HPEX 271 Safety, First Aid and CPR	3	-
Electives	9	12**
	<hr/>	<hr/>
	15	12

Total

125

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school Algebra II or Geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

All stage management students are required to work on Theatre VCU productions. This requirement gives them the opportunity to put into practice those skills learned in classes. Those assignments will be determined by the faculty adviser. Students will be asked to serve as assistant stage manager or stage manager under a faculty or guest director during Theatre VCU's season. These credits may be taken as R&P or Stage Management electives.

Electives are to be decided with the student's faculty adviser. The Equity Stage Managers suggest classes in voice and diction, dialects, stage movement, stage combat and weapons Safety, advanced design, computer technology, technical drafting, sound, personal management and film production.

** Students, in consultation with their adviser, also may elect to have one semester of their senior year as a professional internship at an approved theatre.

Theatre education

	credits	
	fall	spring
First year		
THEA 103/104 Stagecraft/Costume Construction	3	3
ENGL 205 or 206 American Literature	-	3
THEA 113-114 Acting I	3	3
ENGL 101 Writing and Rhetoric Workshop I	3	-
Social science elective	3	-
Laboratory science elective	4	4
Mathematics elective*	-	3
Electives	2	2
	<hr/>	<hr/>
	18	18

Second year

ENGL 200 Writing and Rhetoric Workshop II	3	-
THEA 201-202 Stage Voice and Speech	3	3

THEA 221 Introduction to Scene Design	3	-
THEA 227 Basic Stage Costuming and Makeup	3	-
THEA 229 Introduction to Lighting Design	-	3
THEA 307-308 History of Theatre	3	3
ENGL 203 or 204 British Literature	3	-
Ethics elective	-	3
TEDU/ENGL 307 Teaching Writing Skills	-	3
Social science elective	-	3
	<hr/>	<hr/>
	18	18

Third year

THEA 361-362 Directing	3	3
THEA 403 or 404 History of Dramatic Literature or THEA 423 or 424 Modern Drama or THEA 303 Black Theatre	3	3
EDUS 300 Foundation of Education	3	-
EDUS 301 Human Development and Learning	-	3
ENGL 400 or 401 Shakespeare Literature or writing electives	3	3
Linguistics elective	-	3
Social science elective	-	3
	<hr/>	<hr/>
	15	18

Note: The state of Virginia requires that every education student pass the Praxis I exam prior to admission to fourth year practicum, Directed Student Teaching I and II and Licensure. The Praxis II add-on endorsement in English (Praxis #20042) is required for licensure in English.

Fourth year

TEDU 537 Secondary School Curriculum	3	-
TEDU 310-004 Practicum: Secondary	2	-
TEDU 548 Teaching Secondary School English	3	-
TEDU 310-008 Practicum: English	1	-
TEDU 485 Directed Student Teaching I	-	6
TEDU 486 Directed Student Teaching II	-	6
TEDU/ENGL 433 Literature for Adolescents	3	-
SPCH 321 Speech for Business and the Professions	3	-
	<hr/>	<hr/>
	15	12

Total **132**

* In accordance with the school's general education requirements, a student who scores at least 550 on the mathematics portion of the SATs or has earned a "B" or higher grade in high school algebra II or geometry is exempted from the mathematics requirement. Students who meet this requirement will select an elective to fulfill three credits.

Courses in speech (SPCH)

SPCH 103 Voice and Diction

Semester course; 1 lecture hour. 1 credit. Principles and techniques of effective production of the speaking voice and articulation of the sounds of American English.

SPCH 121 Effective Speech

Semester course; 3 lecture hours. 3 credits. Structured speaking and critical listening experiences within the basic forms of speech communication: interpersonal, small group and public.

SPCH 262 Speech for Broadcast News

Semester course; 3 lecture hours. 3 credits. Theory and application of oral communication skills necessary to produce an effective general American speech pattern suitable for radio and television.

SPCH 321 Speech for Business and the Professions

Semester course; 3 lecture hours. 3 credits. Theory and practice in the oral communication process. Organization and presentation of informative and persuasive subject matter in professional contexts related to the student's major area of interest.

SPCH 401-402 Oral Interpretation of Literature

Continuous course; 3 lecture hours. 3-3 credits. Theory and practice in the analysis and oral presentation of prose, poetry and dramatic literature.

Courses in theatre (THEA)

With permission of instructor, the following graduate courses may be taken by undergraduates for degree credit: THEA 501-502, THEA 505-506, THEA 508 and THEA 513-514. Graduate-level course descriptions are available online: <http://www.vcu.edu/bulletins>.

THEA 103 Stagecraft

Semester course; 9 studio hours. 3 credits. The fundamental methods, materials and techniques of set construction for the stage. Participation in departmental productions.

THEA 104 Costume Construction

Semester course; 9 studio hours. 3 credits. The fundamental methods, materials and techniques of costume construction for the stage. Participation in departmental productions.

THEA 107, 108 Introduction to Stage Performance

Semester courses; 3 lecture hours. 3, 3 credits. For non-theatre majors. A survey and application of the basic elements in stage performing; acting, scene study, voice and movement.

THEA 113-114 Acting I

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Open only to theatre majors upon satisfactory audition. Development of personal resources; an exploration of performance skills through theatre games, role playing, improvisation and work on basic script units.

THEA 201-202 Stage Voice and Speech

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Open only to theatre majors upon satisfactory audition. A study of the basic elements of voice and speech to include International Phonetic Alphabet, ear training, sound production, breathing and application of voice and speech elements to prose and poetry.

THEA 203-204 Movement for the Actor

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Open to theatre majors only. A study of the basic elements of movement for the actor.

THEA 211-212 Introduction to Drama

Continuous course; 3 lecture hours. 3-3 credits. Analysis and critical examination of plays for methods of interpretation and production qualities. Writing intensive.

THEA 213-214 Acting II

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Prerequisites: THEA 113-114 or equivalent. Open only to theatre majors upon satisfactory audition or with permission of instructor. A practical application of the psychophysical basis of acting through exploration, improvisation, scoring and performance of scenes.

THEA 221 Introduction to Scene Design

Semester course; 3 lecture hours. 3 credits. An introduction to the theories, practices and procedures of designing for the stage.

THEZ 221L Introduction to Scene Design Laboratory

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 221. Participation in departmental productions. Observation and participation in the practical application of scene design in performance.

THEA 223, 224 Practicum in Theatre Technology

Semester courses; 9 studio hours. 3, 3 credits. Prerequisites: THEA 103, 104. Advanced study in theatre technologies and the materials and methodologies of stage construction.

THEZ 223L, 224L Practicum in Theatre Technology Laboratory

Semester courses; 3 studio hours. 1, 1 credit. Observation and participation in the practical application of theatre technology in performance.

THEA 225 Basic Stage Electronics-Lighting

Semester course; 3 lecture hours. 3 credits. A study of the properties and basic principles of electricity as they relate to the utilization of light on the stage. Participation in departmental productions.

THEZ 225L Basic Stage Electronics-Lighting Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 227-228 Basic Stage Costuming and Makeup

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. Prerequisite: THEA 104 or permission of instructor. A study of the techniques used to dress the performer, including design theory and make-up application. Participation in departmental productions.

THEZ 227L, 228L Basic Stage Costuming and Make-up Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 229 Introduction to Lighting Design

Semester course; 2 lecture and 3 studio hours. 3 credits. A study of issues concerning the properties of light and electricity as they relate to theatre including design, composition and color.

THEZ 229L Introduction to Lighting Design Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 251, 252/351, 352/451, 452 Rehearsal and Performance

Semester courses; 2, 4 or 6 studio hours. 1, 2 or 3 credits. Work in acting, management, design or technical areas within a TheatreVCU production.

THEA 301-302 Advanced Stage Voice and Speech

Continuous course; 2 lecture and 2 studio hours. 3-3 credits. May be repeated for a maximum of 6-6 credits. Prerequisites: THEA 201-202. Additional prerequisite for THEA 302: "B" or better in THEA 301. Open only to theatre majors upon satisfactory audition or with permission of instructor. First semester: Study of major stage dialects. Second semester: Study and practice in the use of stage voice and speech applied to the plays of Shakespeare.

THEA 303/AFAM 303 Black Theatre

Semester course; 3 lecture hours. 3 credits. A study of the major developments in the evolution of black theatre through readings and studio performances in black-related and black theatre dramaturgy.

THEA 305-306 Advanced Scenic Design I-II

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Prerequisites: THEA 221 and permission of instructor. A study of the techniques and methods of scene design.

THEZ 305L, 306L Scene Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design technical courses.

THEA 307-308 History of the Theatre

Continuous course; 3 lecture hours. 3-3 credits. A study and analysis of theatre history: the architecture, the performer and performances, the stage, the production methods and the audience.

THEA 309, 310 History of Costumes

Semester courses; 3 lecture hours. 3, 3 credits. Illustrated lectures on the history of clothing from primitive times to the present.

THEA 311-312 Advanced Movement for the Actor

Continuous course; 1 lecture and 6 studio hours. 3-3 credits. Prerequisites: THEA 203-204. Additional prerequisite for THEA 312: "B" or better in THEA 311. Open only to theatre majors upon completion of satisfactory audition or with permission of instructor. An advanced-level approach to movement for the actor emphasizing physical control, flexibility and various techniques of stage combat with and without weapons.

First semester: Study and practice in techniques of unarmed combat for the stage. Second semester: Study and practice in techniques of armed combat for the stage.

THEA 313-314 Actor's Studio I

Continuous course; 1 lecture and 4 studio hours. 3-3 credits. Prerequisites: THEA 213-214. Additional prerequisite for THEA 314: "B" or better in THEA 313. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. Students will learn techniques for approaching specific acting problems associated with the performance of various modern and contemporary acting styles.

THEA 315 Audition Technique

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: "B" or better in THEA 313. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. Concentrated work using various techniques and methods of auditioning for the stage, television and film.

THEA 321, 322 Research Techniques for Costume Design

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisite: Permission of instructor. A seminar in research and design of costumes for the theatre, including discussion of fabrics and special construction methods used in stage costuming. Participation in departmental productions.

THEZ 321L, 322L Research Techniques for Costume Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 323 Practicum in Advanced Theatre Technology

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of nine credits. Advanced study in theatre technologies and technical management.

THEZ 323L Practicum in Advanced Theatre Technology

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 323. Observation and experience in a practical situation with an emphasis on leadership and crew management.

THEA 324 Practicum in Stage Lighting

Semester course; 9 studio hours. 3 credits. May be repeated for a maximum of nine credits. Practical application in the methodologies of stage lighting.

THEZ 324L Practicum in Stage Lighting

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 324. Observation and experience in a practical situation with an emphasis on leadership and crew management.

THEA 325 Stage Management

Semester course; 2 lecture and 2 studio hours. 3 credits. Prerequisite: Permission of instructor. The fundamental responsibilities and techniques of professional stage management.

THEA 326 Theatrical Sound Design

Semester course; 3 lecture hours. 3 credits. May be repeated for up to nine credits with permission of instructor. A study of sound design theory and the

practical application of those ideas in creating sound designs for theatrical productions.

THEZ 326L Theatrical Sound Design Laboratory

Semester course; 3 studio hours. 1 credit. Pre- or corequisite: THEA 326. Participation in departmental productions. Observation and participation in the practical application of sound design and execution in performance.

THEA 327 Theatrical Drafting

Semester course; 3 lecture hours. 3 credits. Prerequisites: THEA 221 and permission of instructor. Computer based instruction in the procedures and techniques of drafting for the theatre, including preparation and presentation, perspective, rotation, development and graphic solutions pertaining to theatrical construction problems.

THEA 330, 331/430, 431 Production

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. The design, rehearsal and performance of dramatic works.

THEA 340, 341/440, 441 Theatre Projects

Semester courses; 1 or 2 lecture and 4 or 8 laboratory hours. 3 or 6 credits per semester. Open only to theatre majors. Individual or group projects in acting, directing, costume design, stage design or dramaturgy.

THEA 361-362 Directing

Continuous course; 3 lecture hours. 3-3 credits. Open only to theatre majors. Lectures and discussions on the theories of stage direction; problems involved in the production of period plays and a study of modern theories. Writing intensive.

THEA 403, 404 History of Dramatic Literature

Semester courses; 3 lecture hours. 3, 3 credits. Study and analysis of dramatic literature. First semester: Aeschylus through Shakespeare. Second semester: Corneille to Ibsen.

THEA 407 Advanced Scenic Technique

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: THEA 221 and permission of instructor. An intensive involvement in contemporary theory and practice of scenic techniques. Participation in departmental productions.

THEZ 407L Advanced Scenic Technique Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 413 Actor's Studio II

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisites: "B" or better in THEA 314. Open only to theatre majors upon completion of satisfactory audition or with permission of instructor. Students will learn techniques for approaching specific acting problems associated with the performance of various classical acting styles.

THEA 414 Actor's Studio III

Semester course; 1 lecture and 4 studio hours. 3 credits. Prerequisite: "B" or better in THEA 314. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. Students will learn techniques for approaching specific acting problems associated with performance in front of the camera.

THEA 415 The Business of Theatre

Semester course; 3 lecture hours. 3 credits. Prerequisites: "B" or better in THEA 314. Open only to theatre majors upon completion of a satisfactory audition or with permission of instructor. An analysis and survey of beginning and maintaining a successful professional career in theatre, television and film, including information about contracts, unions, agents/managers, casting directors, taxes and other life strategies.

THEA 421, 422 Advanced Costume Design

Semester courses; 2 lecture and 2 studio hours. 3, 3 credits. Prerequisites: THEA 321, 322, or permission of instructor. An advanced study of the techniques, methods and problems of costume design for the student who plans to enter the field professionally.

THEZ 421L, 422L Advanced Costume Design Laboratory

Semester courses; 2 studio hours. 1, 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 423, 424 Modern Drama

Semester courses; 3 lecture hours. 3, 3 credits. Intensive study of major continental and American plays.

THEA 426/ENGL 426 Playwriting

Semester course; 3 lecture hours. 3 credits. May be repeated once for credit. Prerequisite: ENGL 317 or permission of instructor. A practical introduction to the creation of original scripts for theatre. Works may be selected for reading and performance. May not be used to satisfy the College of Humanities and Sciences' requirement in literature.

THEA 429 Advanced Lighting Design

Semester course; 2 lecture and 3 studio hours. 3 credits. Prerequisites: THEA 229 and permission of instructor. Advanced study of the methods, problems and techniques of lighting design for the student who plans to enter the field professionally.

THEZ 429L Advanced Lighting Design Laboratory

Semester course; 2 studio hours. 1 credit. The practical application in production of the ideas, principles and theories discussed in design/technical courses.

THEA 461, 462 Advanced Directing

Semester courses; 3 lecture hours. 3, 3 credits. Prerequisites: THEA 361-362. Further study in direction techniques, especially the problems of the full-length play.

THEA 491 Topics in Theatre

Semester course; variable; 1-3 credits per semester. May be repeated for a maximum of nine credits. Flexible semester course in selected aspects of performance, theory, literature or history. See the Schedule of Classes for specific topics to be offered each semester.

THEA 492 Independent Study in Theatre

Semester course; variable credit; 1-3 credits per semester. May be repeated for a maximum of nine credits. Prerequisite: Permission of instructor. Research and/or creative project in the drama major's area of special interest pursuant to graduate study or professional work in the student's chosen field.

THEA 493, 494 Professional Internship

Semester courses; 3-9 credits. A practicum in theatre conducted in cooperation with selected professional or semi-professional theatre organizations.

School of the Arts in Qatar

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http://www.vcu.edu/artweb/vcu_qatar

Funded by the Qatar Foundation for Education, Science and Community Development

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Ph.D. 1979 University of North Texas

John Eckert

Associate Dean for Administrative Affairs (2002)

B.S. 1966 United States Military Academy

M.S. 1973 Michigan State University

M.B.A. 1976 University of Utah

M.S. 1989 Iowa State University

Valerie Jeremijenko

Assistant Dean for Student Affairs (1999)

B.A. (Honors) 1988 Queensland University, Brisbane, Australia

M.F.A. 1996 Arizona State University

Founded in 1998 as a collaboration between the Qatar Foundation for Education, Science and Community Development and Virginia Commonwealth University School of the Arts, the School of the Arts in Qatar has been established to offer the Bachelor of Fine Arts degree in three design programs, Communication Arts and Design (Graphic Design), Fashion Design and Interior Design. Its purpose is to provide special educational opportunities preparing graduates for leadership roles in the design professions. Courses emulate those offered on VCU's Academic Campus. Graduates are prepared for exciting careers in these growing design fields.

VCU School of the Arts obtained the appropriate approvals from the VCU Board of Visitors and the State Council of Higher Education for Virginia and admitted the first class to what would become VCU School of the Arts in Qatar in fall 1998. The State Council of Higher Education for Virginia (SCHEV) approved the request in April

2001 and forwarded its recommendation to the Governor and General Assembly. The 2002 General Assembly adopted legislation authorizing VCU to establish a campus in Qatar.

Degree programs

Baccalaureate programs within the School of the Arts in Qatar prepare students for careers in the following departments:

- Communication Arts and Design, Graphic Design
- Fashion Design
- Interior Design

Communication Arts and Design, Graphic Design

	credits
Foundation program	18
Visual communication fundamentals	18
Emphasis area	39
General education, art history and theory, and academic electives	42
Open electives	6
Total	123

Fashion Design

	credits
Foundation program	18
Fashion design	51
Support courses	9
General education, art history and theory, and academic electives	39
Open electives	6
Total	123

Interior Design

	credits
Foundation program	18
Interior design and support courses	62
General education, art history and theory, and academic electives	42
Open electives	6
Total	128

Courses

Course descriptions of classes offered at the School of the Arts in Qatar are listed under the departments of Communication Arts and Design, Fashion Design and Merchandising, and Interior Design in this chapter. The following courses are offered exclusively at the School of the Arts in Qatar.

Courses in art foundation

ARTF 101-102 Conceptualization and Presentation

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar. A foundation course with the emphasis on conceptualization, sensing and knowing. This course includes studies in preconceptions, value systems, visual semantics, attitudes, criticism and analysis of visual phenomena. This course also is an introduction to the concepts of the third and fourth dimensions and the nature of materials.

ARTF 103-104 Design Fundamentals

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar. A foundation course with emphasis on systems and nonsystems of spatial order as well as color applications and theory.

ARTF 109-110 Drawing Fundamentals

Continuous course; alternate credit; 1 lecture and 3 or 6 studio hours. 2-2 or 3-3 credits. Offered at VCU Qatar. A foundation course with the emphasis on traditional drawing, including perspective, anatomy and artistic judgment.

Cross-listed courses

CARD 330/IDES 330/FASH 330 The Business of Design

Semester course; 3 lecture hours. 3 credits. This course introduces basic global economics and general design business concepts such as the free enterprise system, legal forms of business and financial considerations. It also surveys business and management practices such as planning, decision making, communication, global ethics, marketing, human resources, finance and entrepreneurial skills needed to open a design business.

CARD 370/FASH 370/IDES 370 Design History: 20th and 21st Centuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: ARTF 105-106. Study of the major theories and styles on communication arts, fashion and interior environments of the 20th and 21st centuries. Contemporary analysis of cultural conditions and the manner in which designers respond to those conditions. Writing intensive.

Courses in English

ENGL 101 a and b Writing and Rhetoric Workshop I

Semester course; 3 lecture hours. 3 credits. Placement in either ENGL 100 or 101 by Writing Assessment Exam. This course leads students through rhetorical practices and various stages of academic writing, with emphases

on critical thinking, a variety of forms and genres, and the process of revision. It also introduces students to argument and the use of print and electronic sources. May be graded with "CO."

ENGL 200 a and b Writing and Rhetoric

Workshop II

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 101 and sophomore standing (completion of 24 credits). Intensive study of the rhetorical principles and writing conventions of research-based argumentation. Emphasis on methods and criteria for finding, analyzing, evaluating and documenting information from a variety of print and electronic sources.

Admission

Admission policies for VCU School of the Arts in Qatar are the same as those in effect for VCU School of the Arts in Richmond with minor exceptions that recognize the culture and heritage of applicants from the Gulf region. Requirements include:

1. The Qatari GSEC (General Secondary Education Certificate) or equivalent certificate from an accredited high school. Students applying from the British system must submit the results of their GCSE.
2. A working knowledge of English. Official Test of English as a Foreign Language (TOEFL) scores are to be submitted with the application. Students whose TOEFL scores do not qualify them for admission are recommended to an academic bridge program (see below).
3. The VCU International Application for Admission.
4. The art and design portfolio, either a slide portfolio or drawing and design portfolio. See Admission guidelines for programs requiring specialized supplementary information in the "Admissions to the University" chapter of this bulletin.
5. The application fee.

The high school certificate (or college transcript), official TOEFL score, the completed application form, and the portfolio are all required for admission. These and all other papers submitted for admission become the confidential property of VCU School of the Arts in Qatar.

New students will be accepted with a score of 500 or above on the TOEFL.

Conditional acceptance is offered to students who do not present a TOEFL score of 500 based on an exceptional high school record and portfolio. Conditional students must repeat the TOEFL during the foundation year, score a minimum of 500 and earn passing grades in order to proceed to the second year.

Evaluation of transcripts. Applicants applying for transfer credit from a post-secondary institution will have their transcripts reviewed for possible acceptance of transfer credits. Faculty and administrative committees determine placement in all upper-level courses after evaluating the student's record and portfolio of course work.

Mathematics placement test. All incoming students are required to take the mathematics placement test.

Internships

Students of the VCU School of the Arts in Qatar are required to complete internship course work for which university credit is offered. These placements are under the supervision of faculty members within the major.

Academic requirements

All degree programs in the School of the Arts in Qatar stipulate a minimum GPA requirement in the major concentration of at least 2.0.

School of Business

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<http://www.bus.vcu.edu>

Michael Sesnowitz

Dean and Professor of Economics (2000)
B.A. Brooklyn College of The City University of
New York
M.A. Brooklyn College of The City University of
New York
Ph.D. 1971 University of Pittsburgh

E. G. Miller

Senior Associate Dean and Associate Professor of
Insurance and Management Science (1973)
B.S. University of Alabama
M.A. University of Alabama
Ph.D. 1976 University of Alabama
CLU, CPCU

Walter S. Griggs Jr.

Associate Dean for Undergraduate Studies and
Associate Professor of Business Law (1971)
M.H. University of Richmond
J.D. University of Richmond
Ed.D. 1979 College of William & Mary

Charles J. Gallagher

Associate Dean for External Affairs and Associate
Professor of Economics (1971)
B.S. Rider College
Ph.D. 1971 West Virginia University

Allen S. Lee

Associate Dean for Research and Graduate Studies
and Professor of Information Systems (1998)
B.S. Cornell University
M.S. University of California, Berkeley
Ph.D. 1982 Massachusetts Institute of Technology

The mission of the VCU School of Business is to prepare students for successful careers and lifelong learning by providing management education firmly grounded in technology, interdisciplinary teamwork and global perspectives. Essential to achieving this mission is striving to excel in teaching and scholarly research, and to build effective, value-based relationships with the external community.

The general education requirements taken by business students provide a broad knowledge of the liberal arts. Major requirements

provide business students with an opportunity for extensive study in specific fields.

The school offers programs in accounting, business administration and management, economics, finance, financial technology, human resource management/industrial relations, information systems, marketing, and real estate and urban land development.

Finance majors choose a specialization in finance, insurance/risk management or financial planning. Information systems majors choose a specialization in application development, network management or business analysis. Majors in business administration and management can choose a specialization in business administration, entrepreneurship and small business, or international management.

Accreditation

The School of Business is accredited by the Association to Advance Collegiate Schools of Business (AACSB International), which accredits programs of professional education in business at the collegiate level. AACSB International accreditation represents the highest standard of achievement for business schools, worldwide. Institutions that earn accreditation confirm their commitment to quality and continuous improvement through a rigorous and comprehensive peer review. AACSB International accreditation is the hallmark of excellence in management education.

Scholarships and awards

In addition to university scholarships, business students may apply and compete for scholarships awarded through the School of Business endowed scholarship funds or through the various School of Business academic programs. Scholarships for School of Business freshmen are administered via the university admissions process. All other scholarships are for continuing students. For more information, contact the

School of Business Undergraduate Office, Room 3119.

Several nonmonetary awards are presented in recognition of scholastic achievement and service. These include the Dean's Scholars, the Delta Sigma Pi Scholarship Key, Virginia Society of Certified Public Accountants Award of Achievement, the Wall Street Journal Award and Davis Ratcliffe Insurance Award. The School of Business Honors Program recognizes outstanding students, faculty and alumni at its annual Honors Program.

Honorary and professional organizations

VCU's business school seeks to improve the quality of its programs and to provide educational development opportunities for its students through active chapters of honorary and professional organizations.

Beta Gamma Sigma is a national scholarship society founded to encourage and reward scholarship and accomplishment among business students. The upper 5 percent of the junior class and the upper 10 percent of the senior class are eligible for election into the society.

Beta Alpha Psi, a national accounting honorary society, elects its members on the basis of scholarly achievement in accounting courses; the National Honor Society of Omicron Delta Epsilon recognizes scholarship in economics; and Alpha Mu Alpha is the national honor society in marketing.

Business students are encouraged to participate in student professional organizations such as the Accounting Society; the Association of Information Technology Professionals; Delta Sigma Pi, an international fraternity that contributes to the development of students in all business disciplines; the Financial Management Association; Gamma Iota Sigma, a national fraternity for students interested in insurance; Rho Epsilon, a national fraternity for students interested in real estate; the

American Marketing Association; the Society for Advancement of Management; the Society for Human Resource Management; and the Jennings Society for students interested in economics.

University Honors Program

The University Honors Program provides academic and other opportunities for academically superior students and is open to qualified business students. For a detailed description of qualifications for admission, see the "Admission to the University" chapter of this bulletin.

Cooperative education and internships

Business students are eligible for the university's Cooperative Education Program. Qualified students placed with an employer will either alternate one semester of full-time study with one semester of full-time work or combine study with part-time work during the same semester. The School of Business also offers internships, allowing advanced students to pursue part-time work assignments with area employers. Students interested in these programs should contact Dr. Charles J. Gallagher, associate dean for external affairs.

International business

Students interested in international business are encouraged to participate in programs available in the School of Business and in other divisions of the university. The international dimensions of business are discussed in a number of courses required of business students. Additionally, the School of Business offers specialized courses that address specific international topics. The School of Business, in conjunction with the College of Humanities and Sciences also offers a Certificate Program in International Management Studies. The certificate program combines international management, foreign languages and European studies into a unique program intended to equip students for careers in international business. Students concentrating in liberal arts or business programs as well as other majors are encouraged to apply to this program. A minor in international studies is

offered through the College of Humanities and Sciences.

VCU students also can participate in the International Student Exchange Program, which allows a student to complete some course work toward a degree while attending a foreign institution. The university also organizes specialized travel and study abroad programs through the Office of International Education.

Business Council of the School of Business

The Business Council of the School of Business is composed of leading business executives. The council meets periodically to advise and assist the dean and faculty in the development of the total educational program and to help in the school's continuing efforts to maintain academic excellence.

Academic policies

School of Business degree programs are organized into two components — the foundation program and the advanced program.

Students admitted to the School of Business as freshmen or sophomores enroll in the foundation program. Continuing students who meet the academic standards are admitted to the advanced program at the beginning of their junior year. Transfer applicants also are considered for admission to the foundation and advanced programs.

Acceptance into a major is competitive and based on academic performance. To maintain the quality of its educational programs, the number of students admitted in any semester depends on the resources available to the school. All students admitted to a major must meet a 2.25 cumulative GPA requirement (the major of information systems requires a cumulative GPA of 2.75 or greater) and must have completed, prior to enrollment in the advanced program, at least 54 credits in the foundation program or its equivalent. Transfer students also must meet the required cumulative GPA for courses taken at their former institutions. The 54 required credits must include the following courses or their equivalents: ENGL 101-200, MGMT 171, 212, ECON 210-211 and ACCT 203-204.

Applications and information for admission to all undergraduate programs in the School of Business can be obtained from

Virginia Commonwealth University, Office of Undergraduate Admissions, 821 W. Franklin St., Richmond, VA 23284-2526.

Admission deadlines

Prospective students for the School of Business must follow the application submission dates for the university as stated in the "Admission to the University" chapter of this bulletin.

A student completing the business foundation program must apply for admission to the advanced program by requesting a change of major. Students currently enrolled in degree programs at VCU who seek a change of major to a School of Business program also should file a change of major request. All change of major requests should be done in the School of Business, Office of Undergraduate Studies, Room 3119. If approved, the change of major becomes effective at the beginning of the following semester.

Accelerated program

The School of Business Accelerated Program enables students to earn both a bachelor's and a master's degree in one of the business disciplines within four years. First-semester freshmen with at least a 1270 SAT score and a high school class rank in the upper 15th percentile are eligible to apply for the program. To remain in the program, students must maintain a 3.5 GPA or better.

In addition to saving time and money, students in this program are guaranteed admission to a master's program in the School of Business. Students may apply to the accelerated program through the School of Business, Office of Undergraduate Studies, Room 3119.

Guaranteed admission

VCU students who receive their undergraduate degrees in business are guaranteed admission into a VCU School of Business master's degree program if they rank in the top 15 percent of their high school class with a minimum 3.0 GPA, have a minimum recentered SAT score of 1270 and have an undergraduate cumulative GPA of at least 3.5. An on-campus interview is recommended.

Enrollment in business courses

All VCU students may enroll in freshman and sophomore business courses (all 100- and 200-level courses in the School of Business) provided prerequisites are met.

Only juniors, seniors and graduate students admitted to a major field within the university and special students with a bachelor's degree are eligible for enrollment in all upper-division courses (300- and 400-level courses in the School of Business). Students without these qualifications may enroll in the following upper-division courses if the prerequisites are met:

ACCT 305 Tax Planning for Individuals
 FIRE 315 Personal Financial Planning
 FIRE 316 Principles of Real Estate
 FIRE 333 Risk and Insurance
 FIRE 428 Employee Benefit Planning
 FIRE/MGMT 444 Occupational Safety, Health and Security
 INFO 300 Computer Hardware and Software
 INFO 350 Intermediate Programming
 INFO 360 Business Information Systems
 MGMT 301-302 Business Statistics
 MGMT 421 Introduction to Entrepreneurship

Limitation on total credits earned by non-business majors

The number of credits that non-business majors may accumulate from enrollment in classes offered by the School of Business is limited to a maximum of 25 percent of the total credits required for graduation in their programs. Students who wish to present more than 25 percent of their course work in business and/or economics must be admitted to a major in the School of Business, must complete a minimum of 27 credits from the School of Business advanced program after acceptance into the major, and must meet all graduation requirements of the school. This does not limit the number of courses in economics for economics majors in the College of Humanities and Sciences.

Transfer policies

In addition to meeting the general requirements of the university and the School of Business, transfer students who plan to enroll in an undergraduate program in business must comply with the following requirements:

1. Calculation of the cumulative GPA requirement for admittance into the School of Business advanced program is based on grades earned at all institutions attended.
2. Transfer of business and economics courses from two-year institutions is limited to courses offered by the School of Business in the lower division (freshman and sophomore years).
3. For a course to be considered for acceptance into the advanced program, it must be completed in a business program that is accredited by AACSB-International and is at a four-year university. Any other transfer request must be reviewed and approved by the School of Business Committee on Transfer Credit.

Student advising

Every student admitted to a major is assigned a faculty adviser from that major field of study. Students enrolled in the foundation program are assigned advisers to assist them until the foundation program is completed. The advisers assist students in planning course work, becoming familiar with university services, interpreting university rules and procedures, and clarifying career objectives.

While the faculty of the School of Business provides information and advice, the student is ultimately responsible for knowing and satisfying the degree requirements of his or her program. Students should familiarize themselves with curriculum requirements, appropriate sequencing of courses and course prerequisites, and academic regulations covered in the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

Double majors

A double major fulfills the requirements of two majors concurrently. To earn a degree with a double major, the student must fulfill all the requirements of the degree programs of which the majors are a part. Students can declare a double major in the School of Business through the change of major process in the Office of Undergraduate Studies. The request for a double major should be approved before the student begins courses in the second major. For a second major in

the School of Business, the student must complete all courses required for each major. If more than one course overlaps both majors, the student must complete additional courses to reach a minimum of 24 credits in the second major. The chair of the department in which the second major is offered must approve all second major courses at the time the student declares the double major. Students admitted to the double major are assigned an adviser in each major.

General requirements for Bachelor of Science in Business

To complete this degree, a minimum of 120 credits is required, with no more than four of those credits in physical education, and no more than another four credits from INFO 160, 161, 162, 163, 165, 166, 167, 168 and 169. The foundation program specifies course work required during the freshman and sophomore years. Students who successfully complete a minimum of 54 credits in the foundation program — including ENGL 101 and 200 (with a minimum of "C" grade in each course), ECON 210-211, MGMT 171, 212 and ACCT 203-204 — and meet the course and GPA requirements are eligible for admission into a major in the School of Business.

The advanced program details the course requirements for students admitted to a major in the school. Candidates for the bachelor's degree in business must complete the 120 credits outlined in the combination of the foundation and advanced programs. At least 30 hours of the required business courses for the Bachelor of Science in Business must be taken at VCU.

Foundation program

	credits
1. General requirements	21
ECON 210-211 Principles of Economics	
ENGL 101 Writing and Rhetoric Workshop I	
ENGL 200 Writing and Rhetoric Workshop II	
MGMT 171 Mathematical Applications for Business	
MGMT 212 Differential Calculus and Optimization for Business	
SPCH 121 or 321 Effective Speech or Speech for Business and the Professions (Only one of these courses may be used to fulfill degree requirements.)	
MATH 211 Mathematical Structures (only required of Information Systems majors*)	

* Information Systems majors must take a total of 24 credits.

- 2. Restricted electives** 21
- a. Natural science
One course and its associated laboratory from the following:
BIOL 101 Biological Concepts
BIOL/ENVS 103 Environmental Science
CHEM 101-102 General Chemistry
CHEM 110 Chemistry and Society
GEOG/ENVS 105 Physical Geology
PHYS 101 Foundations of Physics
PHYS 103 Elementary Astronomy
PHYS 107 Wonders of Technology
PHYS 201-202 General Physics
- b. Human behavior
One course from psychology, sociology or anthropology, except PSYC 214 Applications of Statistics, which cannot be taken for degree credit by business majors.
- c. Institutional studies
One course from the following: (Accounting majors must take political science.)
HIST 101 or 102 Survey of European History
HIST 103 or 104 Survey of American History
POLI 103 U.S. Government
POLI/INTL 105 International Relations
POLI 201 Introduction to Politics
- d. Literature, philosophy, language
One course from the following:
ENGL 201 or 202 Western World Literature I or II
ENGL 203 or 204 British Literature I or II
ENGL 205 or 206 American Literature I or II
ENGL 241 Shakespeare's Plays
PHIL 103 Ancient Greek and Medieval Western Philosophy
PHIL 104 Modern Western Philosophy
Any foreign language
- e. Visual and performing arts (minimum of two credits)
One course from the approved list found within the "College of Humanities and Sciences" chapter of this bulletin.
- f. Additional restricted electives
Select remainder of 21 credits from any of the other courses listed above in (a) through (e).
- 3. Non-School of Business electives** 12
(MGMT 302 Business Statistics and a maximum of four credits from the INFO 160 series can be used as nonbusiness electives.)
- 4. School of Business foundation core** 6
ACCT 203-204 Introduction to Accounting
- 5. Business and/or nonbusiness electives** 3
Finance majors must take MGMT 302 Business Statistics, and accounting majors should consult recommended electives under the accounting major requirements. All School of Business students

entering junior-level business and economics courses are expected to have competency in computer-based word processing and spreadsheet skills.

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Advanced program

- 1. School of Business advanced core** credits 30
ECON 303 Managerial Economics
FIRE 311 Financial Management
INFO 360 Business Information Systems
MGMT 301 Business Statistics
MGMT 319 Organizational Behavior
MGMT 320 Production/Operations Management
MGMT 325 Organizational Communication
MGMT 434 Strategic Management
MRBL 308 Introduction to Marketing
MRBL 323 Legal Environment of Business
(Accounting majors must take MRBL/ACCT 481 Law for Accountants I in place of MRBL 323)
- 2. Major requirements** – listed under the major requirement section of each department 27

credits 30

27

57

Total foundation and advanced programs 120

Minor in general business

The minor in general business is for nonbusiness majors and consists of the following 21 credits: ECON 203 Introduction to Economics, ACCT 202 Accounting for Non-business Majors, MRBL 308 Introduction to Marketing (prerequisites: ECON 203 and junior standing), FIRE 311 Financial Management (prerequisites: ACCT 202 and junior standing; pre- or corequisite: MGMT 301), MGMT 319 Organizational Behavior (prerequisite: junior standing), MRBL 323 Legal Environment of Business (prerequisite: junior standing) and INFO 360 Business Information Systems. A cumulative GPA of 2.0 must be attained in these courses.

Minor in e-business

This minor is designed to impart understanding of current e-business practices and technologies. The course of study requires 18 credits. All students choosing the minor must take both the EBUS 201 Introduction to E-business and EBUS 202 Introduction to E-business Technologies. In addition, students must take 12 credit hours; no more than six credits may come from the same

department. The electives, chosen from an approved list of courses, allow the student to acquire more advanced skills tailored to his or her professional goals. The electives include ACCT 307 Accounting Systems, ECON 312 E-commerce and Markets for Information Goods, FIRE 466 E-business Risk Management, MGMT 386 Supply Chain Management, MGMT 421 Introduction to Entrepreneurship and MRBL/INTL 478 Global Internet Marketing. Please refer to the course descriptions of each course for the prerequisites.

Post-baccalaureate undergraduate certificates

The School of Business at VCU offers post-baccalaureate certificates in five areas: accounting, human resource management, information systems, marketing, and real estate and land development. The post-baccalaureate certificate programs are designed for individuals who hold bachelor's degrees in other fields. By taking the courses required at the undergraduate level in one of the certificate concentrations, individuals are able to obtain an extensive knowledge of the subject.

Refer to each departmental listing for certificate requirements.

Application information

Students cannot be accepted into a program until they have completed all the requirements for their bachelor's degree and have achieved at least a 2.5 GPA in their undergraduate work. Applicants to the information systems certificate program must have at least a 2.75 GPA in their undergraduate work. Applicants must submit an application and a nonrefundable fee of \$30. In addition, two official transcripts (bearing the university seal) from the institution granting the bachelor's degree should be sent directly to Graduate Studies in Business. International students must also submit current TOEFL scores and English translations of all transcripts. The deadlines for applications are:

Fall	Jul 15
Spring	Nov 15
Summer	Mar 15

1. Certificate recipients must have received an overall GPA of 2.5 ("C") on credit hours attempted for the certificate at VCU. The grades of "D" and "F"

- are counted in computing the overall GPA but carry no credit.
2. Students who fail to register for at least one course per semester in the program will be dropped automatically from the program and must reapply for admission to continue in the program. At that time some or all of the courses completed prior to the reapplication may not be accepted toward the certificate.

If unusual circumstances warrant it, a leave of absence for one semester may be obtained by requesting such a leave in writing from the director of graduate programs as early as possible but no later than the end of the first week of registration of the semester in which the absence is expected to occur.
 3. Grades of "A," "B," and "C" are passing grades; "D" is not a passing grade. Students who receive a grade of "D" or below on more than 20 percent of the credit hours attempted for the program will be terminated from their program.
 4. Courses in which students have earned a grade of "D" or "F" must be repeated if these courses are needed for the program. Courses for which a passing grade was received cannot be repeated without written permission of the adviser and the director of graduate programs in business. The repeat course option in baccalaureate programs is not applicable to certificate programs.
 5. Students who satisfy all the requirements except the 2.5 average may be allowed to take a maximum of six additional credit hours to raise the average. Students are required to get the approval of the adviser and the director of graduate programs in business.
 6. Full-time certificate status consists of a minimum of 12 and a maximum of 18 undergraduate credits per semester.
 7. Students must continually demonstrate acceptable professional behavior to be retained in the program.
 8. All requirements for the certificate must be completed within five years from the date of admission or taking the first course in the program. This time limitation applies to both full- and part-time students. A maximum of two one-year extensions may be granted if satisfactory progress is demonstrated on the part of students requesting extensions. For extensions, write to the director of graduate programs in business.
 9. The policies of the university regarding undergraduate degree programs will apply as the minimum when the certificate policy is not stated clearly in these policies. When in conflict, the stricter policy will apply in any case.
 10. Students may not use the same course(s) for two certificates or the certificate and another program.
 11. A maximum of six semester hours of acceptable undergraduate credit earned beyond the bachelor's degree (and not applied toward other completed degrees or certificates) may be transferred and applied toward the certificate program requirements. Such credits will be evaluated for acceptance upon written request from the student after completion of nine semester hours of work at VCU. No transfer credit can be given for courses completed prior to awarding the bachelor's degree regardless of whether the courses were taken beyond the minimum required for the bachelor's degree program, unless prior written permission was given by the director of graduate programs in business.

Transfer credit is made at the discretion of the director of graduate programs in business upon the recommendation of the student's adviser. All transfer work must be at the "C" or higher grade level. Transfer credit must not be older than seven years at the time the certificate is awarded. Credits to be earned at other institutions after acceptance in the program must be approved in advance, and approval is granted at the discretion of the director of graduate programs in business. Such work is approved under very unusual circumstances such as a job transfer to a new location over 100 miles from Richmond.
 12. CLEP examination credit is not given for the certificate programs.
 13. All students admitted to a certificate program are assigned advisers. Students are required to work with their advisers to plan their certificate programs. Each student program or changes thereto must be approved by both the adviser and the director of graduate programs in business. Courses taken prior to approval are taken at the student's own risk. Each student is required to complete an approved program form and file it with the Graduate Studies in Business Office no later than the end of the first semester in which the student is admitted. Failure to do so may result in dismissal from the program.
 14. Students cannot be accepted in the certificate programs until they have completed all the requirements for their bachelor's degrees.
 15. Students must apply to graduate using the Graduation Application Form. For deadlines, consult the university calendar.
 16. Student appeals for exceptions to policies or academic standards may be made in writing to Virginia Commonwealth University, Director of Graduate Programs, School of Business, Richmond, VA 23284-4000.

Department of Accounting

Ruth W. Epps

Professor and Department Chair (1987)
 B.S. Virginia Union University
 M.S. University of Pittsburgh
 M.Acc. Virginia Commonwealth University
 Ph.D. 1987 Virginia Commonwealth University
 CPA

The mission of the Department of Accounting at VCU is to prepare students for careers in accounting; to interpret and expand accounting knowledge; and to render service to the profession and communities. The department does so by:

1. providing a learning environment in which students are encouraged to interact with others in identifying and solving accounting and business problems,
2. investigating, developing and sharing knowledge, which has the potential for significant influence on accounting, business and education, and
3. interacting with the accounting profession, the business community and the community at large.

The 120-hour undergraduate accounting program is designed to prepare students for entry-level positions in careers related to governmental and industry/manufacturing accounting. This program will not qualify graduates to sit for the CPA examination in Virginia after the November 2005 CPA Exam. The focus of the undergraduate program is of high quality and professional education at the foundation level with strong emphasis on management control systems, cost analysis and governmental/not-for-profit (nonprofit) accounting.

Major requirements

	credits
ACCT 303 Intermediate Accounting I	3
ACCT 304 Intermediate Accounting II	3
ACCT 306 Cost Accounting	3
ACCT 307 Accounting Systems	3
ACCT 401 Governmental and Not-for-profit Accounting	3
ACCT 402 Advanced Cost Accounting	3
ACCT 403 Management Control Systems	3
ACCT 405 Tax Accounting	3
Required accounting elective (choose from list)	3

Accounting electives

(select one course from the following three)

- ACCT 404 Advanced Accounting/ACCT 513
Financial Accounting
- ACCT 406 Auditing
- ACCT 410 Advanced Tax Accounting

Integrated 150-hour Professional Accounting Program (Master of Accountancy)

For those students who desire to enter the field of public accounting and obtain the CPA certificate, the Department of Accounting offers an Integrated 150-hour Professional Program. This integrated program consists of 150 hours whereby the student earns both the Bachelor of Science and the Master of Accountancy degrees with a major in accounting and a concentration in either (1) information systems, (2) finance and auditing, or (3) other areas of business. A description of this program is given in the Graduate and Professional Programs Bulletin.

Post-baccalaureate certificate in accounting

The post-baccalaureate certificate in accounting is designed for students who hold bachelor's degrees in fields other than accounting and desire to continue their education in another field but who do not aspire to a master's degree. Candidates for the certificate are required to complete a total of 48 hours and to meet other academic standards. Of these 48 hours, at least 30 must be taken beyond the bachelor's degree, and at least 24 must be taken at VCU. Up to 18 credit hours of the courses may be waived if equivalent courses have been completed. All transfer credits and course waivers must be approved by the Department of Accounting and the director of graduate programs in business. Contact the department at (804) 828-1608 for a listing of courses.

Successful completion of the program provides numerous employment opportunities within both business and government organizations. Additionally, graduates are well qualified to sit for the Uniform Certified Public Accountant Examination in Virginia.

Department of Economics

Edward L. Millner

Professor and Department Chair (1983)
B.A. Hampden-Sydney College
Ph.D. 1981 University of North Carolina

Economics is the science of human choice, the study of how scarce resources are allocated among competing uses to satisfy human wants. Since many choices analyzed are made by or affect business decision makers, economics is a unique blend of liberal arts and business. Therefore, the Department of Economics offers a major in both the College of Humanities and Sciences and the School of Business. The major in the College of Humanities and Sciences is designed for students who desire the flexibility and breadth that is associated with a liberal arts degree. Students who want to combine training in economics with exposure to the business disciplines should consider the major in the School of Business.

Undergraduate work in economics is excellent preparation for careers in business, government and teaching, and for graduate work in economics and professional schools such as law, public administration and medicine. Specialization in economics prepares people for careers that emphasize analytical thinking, a broad understanding of the economy and business organizations, and the proper choice of policies by governments and business enterprises. Because of their analytical, quantitative and decision-making skills, students who major in economics are sought for a wide array of positions in management and sales. The specific skills they acquire also provide employment opportunities in large organizations with departments that forecast business conditions and analyze economic data of special interest to the organizations.

Major requirements

	credits
ECON 301 Microeconomic Theory	3
ECON 302 Macroeconomic Theory	3
ECON 307 Money and Banking	3
ECON Electives	
(must be 300- or 400-level courses)	15
MGMT 302 Business Statistics	3

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Minor in economics

A minor in economics is described in the "College of Humanities and Sciences" chapter of this bulletin.

Department of Finance, Insurance and Real Estate

David E. Upton

Professor of Finance and Department Chair (1987)
B.A. University of Connecticut
M.B.A. University of Connecticut
Ph.D. 1976 University of North Carolina
CFA

Finance

The major in finance prepares students for graduate-level study of finance and for careers in corporate finance, the securities industry, banking, financial planning or insurance/risk management. Students choose a concentration in one of three tracks — finance, financial planning or insurance/risk management. Students must receive a "C" or better in each of the major requirements and must have a GPA of 2.0 or better in the track courses.

Courses directly related to risk, insurance and employee benefits are approved for 42 Virginia insurance continuing-education credits for insurance agents. Contact the director of insurance studies for further information.

Students in the financial planning track are urged to take modules in the VCU Certificate in Financial Planning Curriculum. With grades of "B" or better in these modules, students receive the certificate of completion and are eligible to sit for the Certified Financial Planning examination to eventually earn the Certified Financial Planner designation. Contact the chair of the department for further information.

Major requirements

	credits
FIRE 312 Intermediate Financial Management	3
FIRE 314 Investments	3
FIRE 333 Risk and Insurance	3
FIRE 437 Funds Management in Financial Institutions	3
Select one of the three tracks (15 credits)	15

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1. Finance track

FIRE 414 Security Analysis and Portfolio Management
 FIRE/INTL 416 International Financial Management
 FIRE 417 Cases in Financial Management
 FIRE 455 Options, Futures, and Swaps
 Approved finance elective:
 ACCT 303 Intermediate Accounting I
 ACCT 306 Cost Accounting
 ECON 307 Money and Banking
 ECON 402 Business Cycles and Forecasting
 FIRE/INTL 413 Comparative Financial Systems
 FIRE 424 Property and Liability Insurance
 FIRE 426 Life and Health Insurance
 FIRE 429 Real Estate Finance
 FIRE 491 Topics in Finance, Insurance and Real Estate
 FIRE 493 Internship in Finance, Insurance and Real Estate

2. Insurance and risk management track

FIRE 424 Property and Liability Insurance
 FIRE 426 Life and Health Insurance
 FIRE 428 Employee Benefit Planning
 Choose one of the following:
 FIRE 332 System Safety
 FIRE 430 Issues in Risk Management and Insurance
 FIRE/MRBL 432 Insurance Law
 FIRE/MGMT 444 Occupational Safety, Health and Security

Approved insurance/risk management elective:
 ACCT 305 Tax Planning for Individuals
 ECON 307 Money and Banking
 ECON 421 Government and Business
 FIRE 332 System Safety
 FIRE 334 Incident Investigation and Analysis
 FIRE/INTL 413 Comparative Financial Systems
 FIRE 414 Security Analysis and Portfolio Management
 FIRE/INTL 416 International Financial Management
 FIRE 417 Cases in Financial Management
 FIRE 430 Issues in Risk Management and Insurance
 FIRE/MRBL 432 Insurance Law
 FIRE/MGMT 444 Occupational Safety, Health and Security
 FIRE 455 Options, Futures and Swaps
 FIRE 493 Internship in Finance, Insurance and Real Estate
 MGMT 331 Human Resource Management
 MRBL 350 Tort Law

3. Financial planning track

FIRE 414 Security Analysis and Portfolio Management
 FIRE 426 Life and Health Insurance
 FIRE 428 Employee Benefit Planning
 ACCT 405 Tax Accounting
 Approved financial planning elective:
 ACCT 303 Intermediate Accounting I
 ACCT 410 Advanced Tax Accounting
 ECON 307 Money and Banking
 ECON 402 Business Cycles and Forecasting

FIRE/INTL 416 International Financial Management
 FIRE 417 Cases in Financial Management
 FIRE 424 Property and Liability Insurance
 FIRE 429 Real Estate Finance
 FIRE 430 Issues in Risk Management and Insurance
 FIRE/MRBL 432 Insurance Law
 FIRE 455 Options, Futures and Swaps
 FIRE 491 Topics in Finance, Insurance and Real Estate
 FIRE 492 Independent Study in Finance, Insurance and Real Estate
 FIRE 493 Internship
 MRBL 373 Buyer Behavior
 MRBL 474 Personal Selling and Sales Management
 MRBL 475 Services Marketing

Financial technology

The Bachelor of Science with a major in financial technology offers quantitatively oriented students the opportunity to apply mathematical, statistical and programming tools to the finance discipline. The program is technical and interdisciplinary in nature. Students take several finance, mathematics/statistics, information systems and economics courses.

Graduates may choose to continue their education by enrolling in a master's program in financial engineering, mathematical finance, etc. The program offers excellent preparation for doctoral-level study in finance. Graduates might find employment in areas such as derivative instruments and securities, hedging and financial risk management, asset allocation and investment management, quantitative trading and arbitrage, asset/liability management, quantitative applications in corporate and public financial policy, modeling and forecasting financial markets, and computer and information technology in the financial services industry.

Students in the financial technology major must attain a grade of "C" or better in all technically oriented courses and upper-level courses. A student receiving a grade below "C" in any of these courses will have to retake it until a grade of "C" or better is earned. In addition, a minimum GPA of 2.5 or higher must be maintained. Students who fall below a 2.5 will be placed on program probation and be given one semester to bring their GPA up to a 2.5 or higher. Students failing to bring their GPA up to a 2.5 will be advised out of the program. To graduate with a Bachelor of Science with a major in

financial technology, a student must have at least a 2.5 GPA.

Interested students should contact the chair of the Department of Finance, Insurance and Real Estate, 1015 Floyd Ave., Room 5149, Richmond, VA 23284-4000, (804) 828-1620, or send e-mail to deptfire@vcu.edu.

Degree requirements**First year, fall semester**

ENGL 101 Writing and Rhetoric Workshop I
 ECON 210 Principles of Economics
 MATH 200 Calculus with Analytic Geometry*
 General education restricted elective
 General education restricted elective

* MATH 151 or satisfactory score on placement test is prerequisite for MATH 200.

First year, spring semester

SPCH 121 Effective Speech or 321 Speech for Business and the Professions*
 ECON 211 Principles of Economics
 MATH 201 Calculus with Analytic Geometry
 General education restricted elective
 General education restricted elective

* SPCH 321 could be taken in a subsequent semester, swapped with a general education restricted elective.

Second year, fall semester

ACCT 205 Introductory Accounting Survey
 CMSC 245 Introduction to Programming Using C++ or INFO 250 Introduction to Programming
 MGMT 301 Business Statistics or STAT 212 Concepts of Statistics
 MATH 307 Multivariate Calculus
 General education restricted elective

Second year, spring semester

CMSC 246 Advanced Programming Using C++ or INFO 350 Intermediate Programming
 ENGL 200 Writing and Rhetoric Workshop II
 MATH 310 Linear Algebra
 General education restricted elective
 General education restricted elective

Third year, fall semester

FIRE 311 Financial Management
 MRBL 323 Legal Environment of Business
 MATH/STAT 309 Introduction to Probability Theory
 INFO 360 Business Information Systems
 General education restricted elective

Third year, spring semester

FIRE 312 Intermediate Financial Management
 FIRE 314 Investments
 INFO 361 System Analysis and Design
 STAT 321 Introduction to Statistical Computing
 MGMT 325 Organizational Communication

Fourth year, fall semester

- FIRE 437 Funds Management in Financial Institutions
- FIRE 455 Options, Futures and Swaps
- INFO 464 Database Systems
- ECON 401 Introduction to Economics
- MATH 301 Differential Equations or MATH/OPER 327 Mathematical Modeling

Fourth year, spring semester

- STAT 503 Introduction to Stochastic Processes
- FIRE 414 Security Analysis and Portfolio Management
- ECON 403 Introduction to Mathematical Economics
- FIRE 465 Managing Financial Risk
- Financial Technology approved elective*

* See list of approved financial technology electives.

Financial technology electives

- ACCT 303 Intermediate Accounting I
- ACCT 306 Cost Accounting
- ACCT 307 Accounting Systems
- CMSC 245 Introduction to Programming Using C++*
- FIRE/INTL 416 International Financial Management
- FIRE 417 Cases in Financial Management
- FIRE 491 Topics in Finance, Insurance and Real Estate
- FIRE 492 Independent Study in Finance, Insurance and Real Estate
- FIRE 493 Internship in Finance, Insurance and Real Estate
- INFO 300 Computer Hardware and Software
- INFO 350 Intermediate Programming*
- INFO 450 Advanced Programming
- INFO 461 Information Systems Planning
- INFO 465 Projects in Information Systems
- MATH 437 Applied Partial Differential Equations
- MATH 515 Numerical Analysis I
- MGMT 440 Forecasting Methods and Process
- STAT 421 Computational Issues in Statistical Science

* CMSC 245 is a suitable elective for students who have chosen INFO 250 and INFO 350 as their programming courses. INFO 350 is a suitable elective for students who have chosen CMSC 245 and CMSC 246 as their programming courses.

Real estate and urban land development

The major in real estate and urban land development prepares students for careers in land development, brokerage, valuation and investment counseling, site analysis and selection, real property management, mortgage lending, and bank trust and corporate real estate departments as well as other real estate related careers in the public and private sectors.

Major requirements

	credits
FIRE 316 Principles of Real Estate	3
FIRE 317 Real Property Management	3
FIRE/MRBL 326 Real Estate Law	3
FIRE 423 Real Estate Brokerage or FIRE 431 Advanced Real Estate Appraisal	3
FIRE 425 Real Estate Appraisal	3
FIRE 429 Real Estate Finance	3
FIRE 437 Funds Management in Financial Institutions or ECON 307 Money and Banking	3
Plus any two of the following five courses:	6
FIRE 318 Real Estate Negotiating	
FIRE 423 Real Estate Brokerage	
FIRE 431 Advanced Real Estate Appraisal	
MRBL 310 Information for Marketing Decisions	
URSP/GEOG 302 Land Use Capability	
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Post-baccalaureate certificate in real estate and land development

The post-baccalaureate certificate in real estate and land development is designed for persons who already have earned a baccalaureate degree in fields other than real estate and urban land development, yet do not desire to work toward a graduate degree in this field. Aspiring real estate brokers are required to take four of the 10 courses to satisfy their broker educational requirements. By taking only another six additional courses, real estate agents will have the opportunity to increase their business and managerial proficiency through a cohesive program of study at the university level. The certificate program is popular for other professionals, such as appraisers or mortgage lenders, who desire to enter a coordinated real estate studies program.

A minimum of 30 semester credit hours must be earned in satisfying this certificate requirement, with a minimum of 24 semester hours of study required at VCU.

Required courses	credits
FIRE 317 Real Property Management	3
FIRE 318 Real Estate Negotiating	3
FIRE 326/MRBL 326 Real Estate Law	3
FIRE 423 Real Estate Brokerage	3
FIRE 425 Real Estate Appraisal	3
FIRE 429 Real Estate Finance	3
	18
Electives	12
	30

Approved electives

- Select 12 credit hours from the following courses, being certain to have satisfied all prerequisites:
- ACCT 205 Introductory Accounting Survey 3
 - ENVS 491 Topics in Environmental Studies 1-3
 - FIRE 311 Financial Management 3
 - FIRE 424 Property and Liability Insurance 3
 - FIRE 431 Advanced Real Estate Appraisal 3
 - FIRE 437 Funds Management in Financial Institutions 3
 - INFO 160 Introduction to Windows and the Internet 1
 - INFO 161 Introduction to Microcomputer-Based Word Processing Packages 1
 - INFO 162 Introduction to Microcomputer-Based Spreadsheet Processing Packages 1
 - INFO 163 Introduction to Web Page Design and Application Software 1
 - MGMT 421 Introduction to Entrepreneurship 3
 - MRBL 324 Legal Aspects of the Management Process 3
 - MRBL 371 Integrated Marketing Communications 3
 - URSP 525 Site Planning and Graphics 3

Department of Information Systems

Richard T. Redmond

Associate Professor and Department Chair (1983)
 B.S. Shippensburg State College
 D.B.A. 1983 Kent State University

The major in information systems is designed to prepare students for professional careers in the discipline of information systems. Through required and elective courses students will be prepared for positions as programmers, systems analysts, software analysts and network analysts. The department also offers courses in information systems to meet the needs of students in other curricula offered by the university and of those who are seeking to enhance their knowledge of information systems.

Students admitted to the Bachelor of Science program as well as students admitted to the certificate program in information systems must meet a 2.75 cumulative GPA requirement in addition to the other School of Business requirements.

The major requires students to take six required courses and then choose a three-course track.

Major requirements

	credits
A. Major core (18 credits)	
INFO 300 Computer Hardware and Software	3
INFO 350 Intermediate Programming	3
INFO 361 Systems Analysis and Design	3
INFO 370 Fundamentals of Data Communications	3
INFO 464 Database Systems	3
INFO 465 Projects in Information Systems	3
B. Select one of the following tracks	9
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1. Application development

The application development track is intended for those students interested in the development of object-oriented, graphic user interface (GUI-based), distributed applications. It emphasizes the client and server aspects of the implementation environment.

INFO 450 Advanced Programming	3
INFO 451 Java Support for E-business	3
Approved elective	3

Approved electives for application development track (three credits each)

INFO 461 Information Systems Planning
INFO 472 LAN Administration
INFO 474 Internetworking and TCP/IP
INFO 491 Topics in Information Systems
INFO 492 Independent Study in Information Systems
INFO 493 Internship in Information Systems

2. Network management

The network management track is intended for those students interested in the implementation and management of local and wide area networks. It emphasizes the network aspects of the implementation environment.

INFO 472 LAN Administration	3
INFO 474 Internetworking and TCP/IP	3
Approved elective	3

Approved electives for Network Management track (three credits each)

INFO 450 Advanced Programming
INFO 451 Java Support for E-business
INFO 461 Information Systems Planning
INFO 491 Topics in Information Systems
INFO 492 Independent Study in Information Systems
INFO 493 Internship in Information Systems

3. Business analysis

The business analysis track focuses on developing comprehensive approaches to information systems development as part of organizational planning. Consequently, a solid background in the functional areas of business is required. Students enrolled in

the B.S. program satisfy this requirement. Other students must demonstrate appropriate work experience.

INFO 461 Information Systems Planning	3
INFO 463 Business Process Engineering	3
INFO 468 Information Engineering	3

Note: INFO 250 Introduction to Programming is a prerequisite for INFO 350. INFO 250 cannot be used as an elective within the major of information systems, but may be used in the Business Foundation Program under the category "Business and/or non-business electives."

Post-baccalaureate certificate in information systems

The post-baccalaureate certificate in information systems is designed for students who hold bachelor's degrees in fields other than information systems and who desire to continue their education in information systems but do not aspire to a master's degree. Candidates for the certificate are required to complete a total of 30 hours beyond the bachelor's degree, including the courses listed below or their equivalents, with a minimum of 24 credit hours of study in information systems to be taken at VCU.

The post-baccalaureate certificate in information systems program is designed to provide more than a basic knowledge of information systems. Specifically, persons completing the program are expected to achieve competency in understanding information systems terminology, concepts and principles; computer program design, writing and testing; systems analysis/design through proper application and knowledge of current hardware and software; and planning and carrying out system development and the management of information systems. Those students acquiring these skills are well received in the business community and in governmental organizations.

Prerequisite courses

INFO 250 Introduction to Programming
INFO 350 Intermediate Programming (corequisite for INFO 300)

Required courses

INFO 300 Computer Hardware and Software	3
INFO 350 Intermediate Programming	3
INFO 360 Business Information Systems	3
INFO 361 Systems Analysis and Design	3
INFO 370 Fundamentals of Data Communications	3
INFO 464 Database Systems	3
INFO 465 Projects in Information Systems	3

B. Selections from one of the following tracks	9
Total	30

1. Application development

The application development track is intended for those students interested in the development of object-oriented, graphic user interface (GUI) based, distributed applications. These include Internet based E-business applications with GUI front ends and database back ends.

INFO 450 Advanced Programming	3
INFO 462 Java Support for E-business	3
Approved elective	3

2. Network management

The network management track is intended for those students interested in the implementation and management of local and wide area networks. It emphasizes the network aspects of the implementation environment.

INFO 472 LAN Administration	3
INFO 474 Internetworking and TCP/IP	3
Approved elective	3

3. Business analysis

The business analysis track focuses on the development of comprehensive approaches to information systems development as a part of organizational strategic planning. Consequently, prior approval by the track coordinator is required and it is offered only to students who are able to demonstrate significant work experience in one or more of the following areas:

- analyzing/designing systems
- planning/managing information technology development projects
- planning/managing organizations from a strategic perspective

INFO 461 Information Systems Planning	3
INFO 463 Business Process Engineering	3
INFO 468 Information Engineering	3

Elective courses for application development track

ACCT 205 Introductory Accounting Survey	3
INFO 461 Information Systems Planning	3
INFO 472 LAN Administration	3
INFO 491 Topics in Information Systems	3
INFO 492 Independent Study	3
INFO 493 Internship	3

Elective courses for network management track

ACCT 205 Introductory Accounting Survey	3
INFO 450 Advanced Programming	3
INFO 461 Information Systems Planning	3
INFO 491 Topics in Information Systems	3
INFO 492 Independent Study	3
INFO 493 Internship	3

Note: INFO 250 Introduction to Programming is a prerequisite for INFO 350. INFO 250 cannot be used as an elective within the information systems major, but may be used in the Business Foundation

Program under the category "Business and/or non-business electives."

Department of Management

Glenn H. Gilbreath

Professor of Decision Sciences and Department Chair (1971)
 B.S. University of Alabama
 M.A. University of Alabama
 Ph.D. 1971 University of Alabama

The Department of Management offers the major in business administration and management with three tracks: business administration, entrepreneurship and small business management, and international management, as well as the major in human resource management/industrial relations.

Business administration and management

The major in business administration and management consists of three tracks that allow students to either pursue general study in business and management or to specialize in selected areas of management. The track in business administration provides a broad-based study of management and other business disciplines. The choices in the business administration track allow students flexibility in developing a program of study leading to a variety of entry-level positions in private and public organizations.

The entrepreneurship and small business track enables students to develop skills in working with small firms and eventually starting small firms of their own, as well as to gain a knowledge of entrepreneurial concepts useful for a variety of positions in organizations of any size.

The track in international management allows students to pursue an interest in the global nature of today's business world. Students enrolled in this track are encouraged to take advantage of a variety of opportunities available for international study within the university and abroad.

Major requirements

	credits
A. Major core (9 credits)	
MGMT 302 Business Statistics	3
MGMT 331 Human Resource Management	3
MGMT 334 Managing Dynamic Organizations	3

B. Select one of the following tracks 18

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1. Business administration

- MGMT 339 Management Science
- MGMT/INTL 418 International Management
- MGMT 489 Managerial Applications and Skills Development
- Approved finance or insurance elective (choose one)
 - FIRE 312 Intermediate Financial Management
 - FIRE 314 Investments
 - FIRE 316 Principles of Real Estate
 - FIRE 333 Risk and Insurance
- Approved systems or marketing elective (choose one)
 - INFO 361 Systems Analysis and Design
 - MGMT 346 Technology and the Management Process
 - MRBL 376 Dynamics of Retail Management
 - MRBL 475 Services Marketing
- Approved management elective (choose one)
 - MGMT 420 Seminar in Industrial Relations
 - MGMT 421 Introduction to Entrepreneurship
 - MGMT 433 Compensation Management
 - MGMT 439 Quality I
 - MGMT 491 Topics in Management
 - MGMT 493 Internship in Management

2. Entrepreneurship and small business management

- FIRE 313 Financial Management for Small Business
- MGMT 421 Introduction to Entrepreneurship
- MGMT 422 Managing the Family Firm
- MGMT 436 New Venture Initiation
- Approved electives (choose two) – subject to prerequisites listed in course descriptions
 - ACCT 306 Cost Accounting
 - FIRE 316 Principles of Real Estate
 - FIRE 333 Risk and Insurance
 - MGMT 346 Technology and the Management Process
 - MGMT 385 Production/Operations Management II
 - MGMT 489 Managerial Applications and Skills Development
 - MRBL 372 Product Development and Management
 - MRBL 376 Dynamics of Retail Management
 - MRBL 475 Services Marketing

3. International management*

- ECON/INTL 329 International Economics
- MGMT 329/INTL 327 Introduction to Intercultural Communication
- MGMT/INTL 418 International Management
- Approved electives (choose three) – subject to prerequisites listed in course descriptions
 - FIRE/INTL 416 International Financial Management
 - MGMT/INTL 446 International Human Resource Management
 - MGMT 489 Management Applications and Skill Development

- MGMT 491 Topics in Management: Summer Study Abroad (see Schedule of Classes for courses offered)
- MRBL/INTL 378 International Marketing
- MRBL/INTL 478 Global Internet Marketing Consortium International University courses** International electives**

* Students are encouraged to consider: a minor in international studies or foreign languages, the semester abroad program through the Consortium International University, and courses outside the School of Business (approved by adviser or department chair).

** Approved by adviser and department chair

Human resource management/ industrial relations

The major in human resource management/industrial relations gives students a broad overview of the educational and application aspects of human resource management/industrial relations. Students in this program pursue an in-depth study of a variety of topical areas, including human resource management, labor and employment relations law, compensation management, and employee benefits. Students are encouraged to broaden their knowledge base by taking electives in industrial psychology. After completing this program students are prepared to enter the public and private sectors in compensation, employee benefits, incentive awards programs and human resources.

Major requirements

	credits
MGMT 331 Human Resource Management	3
MGMT 420 Seminar in Industrial Relations	3
MGMT 433 Compensation Management	3
MGMT 435 Strategic Human Resource Management	3
MGMT/INTL 446 International Human Resource Management	3
MRBL/MGMT 427 Labor and Employment Relations Law	3
Approved electives (choose three courses from the list of approved electives)	9

(Students planning to attend graduate school should complete MGMT 302 as either an approved or free elective.)

Choose three of the following approved electives:

- ADLT 403 Human Resource Development
- ECON 431 Labor Economics
- FIRE 428 Employee Benefit Planning
- FIRE/MGMT 444 Occupational Safety, Health and Security

MGMT 302 Business Statistics
 MGMT 334 Managing Dynamic Organizations
 MGMT 447 Human Resource Information Systems
 MGMT 489 Managerial Applications and Skills Development

Minor in human resource management

Required courses

MGMT 331 Human Resource Management
 MGMT 433 Compensation Management
 MGMT 435 Strategic Human Resource Management
 MGMT/INTL 446 International Human Resource Management

Select two courses from the following list:

ADLT 403 Human Resource Development
 FIRE 428 Employee Benefit Planning
 FIRE/MGMT 444 Occupational Safety, Health and Security
 MGMT 420 Seminar in Industrial Relations
 MGMT 447 Human Resource Information Systems
 MRBL/MGMT 427 Labor and Employment Law

Post-baccalaureate certificate in human resource management

The post-baccalaureate certificate in human resource management is designed to increase the knowledge and skills of human resource practitioners, to prepare individuals who are seeking employment in the field, and to educate persons who desire more knowledge about human resource management. The PBC/HRM program is designed to provide advanced knowledge of human resource management (HRM). Specifically, persons completing the program are expected to achieve competency in understanding HRM terminology, concepts and principles; design and implement policies that are consistent with the organizational strategic plan; and develop procedures to accomplish organizational goals by obtaining and maintaining effective employees. Persons completing the program should have enhanced opportunities for employment in the HRM field.

A minimum of 30 semester credit hours must be earned in satisfying this certificate requirement, with a minimum of 24 semester hours of study required at VCU.

Certificate requirements

Required courses	credits
FIRE 428 Employee Benefit Planning	3
FIRE 444 Occupational Safety, Health and Security	3
MGMT 331 Human Resource Management	3
MGMT 420 Seminar in Industrial Relations	3

MGMT 433 Compensation Management	3
MGMT 435 Strategic Human Resource Management	3
MRBL 427 Labor and Employment Relations Law	3
	<hr/>
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Electives

Choose three of the following courses*
 ADLT 403 Human Resource Development
 ECON 431 Labor Economics
 MGMT 446 International Human Resource Management
 MGMT 447 Human Resource Information Systems
 PSYC 310 Industrial Psychology

Total **30**

* Any prerequisites also must be satisfied.

Certificate in international management studies

The certificate program in international management studies is an interdisciplinary program offered by the Department of Management (School of Business) and the School of World Studies (College of Humanities and Sciences). The certificate program combines international management, foreign languages and European studies into a unique program intended to equip students for careers in international business. Students concentrating in liberal arts or business programs as well as other majors are encouraged to apply.

Certification through this program requires 33 to 36 hours of approved credits from the list of courses given below. Students may enroll in this program and take courses while enrolled in another undergraduate program at the university, but must choose the same country track for European Studies and Foreign Language courses. For more information, contact Dr. Charles M. Byles of the Department of Management at (804) 828-7125 or cmbyles@vcu.edu, or Dr. R. McKenna Brown of the School of World Studies at (804) 827-1111 or rmbrown1@vcu.edu, or visit the program's Web site: <http://www.cim.bus.vcu.edu>.

Course requirements

European studies

Select three courses from the following list. At least one course must be specific to one of the following country tracks: France, Germany or Spain.

EUCU 307 Aspects of German Culture
 FREN 420 French Regional Culture
 FREN 421 French Contemporary Culture
 GEOG 334 Regional Geography of Europe
 GRMN 421 The Postwar German Scene
 HIST 102 Survey of European History
 HIST 313 Post-war Europe, 1945 to the Present
 HIST 316 History of France
 HIST 318 History of Germany
 HIST 323 History of Spain and Portugal
 HIST 330 European Social History
 POLI/INTL 352 European Governments and Politics
 SPAN 420 Civilization of Spain II

Foreign languages 9

Select one of the following language tracks:

French

FREN 300 Advanced Grammar and Writing
 FREN 321 French Civilization and Culture II
 FREN 440 Commercial French

German

GRMN 300 Advanced Grammar and Writing
 GRMN 314 Commercial German
 GRMN 321 German Civilization II

Spanish

SPAN 300 Advanced Grammar and Writing
 SPAN 320 Civilization of Spain I
 SPAN 414 Commercial Spanish

International management 9

MGMT 319 Organizational Behavior
 MGMT 329/INTL 327 Introduction to Intercultural Communication
 MGMT/INTL 418 International Management

Experiential learning 3

The following courses are ways to apply program content to international management settings. Choose any one.

MGMT/INTL 491 Topics: The European Union (Study Abroad)
 INTL 493 International Studies Internship
 Approved service-learning course (SPAN 402 Language Issues in the Spanish-speaking World, FREN 300 Advanced Grammar and Writing, RELS 340/INTL 341 Global Ethics and the World's Religions or other approved courses).

Language/cultural immersion experience 0-3

Students must complete an approved language/cultural immersion experience by which they demonstrate the successful application of foreign language, cross-cultural and management skills. This demonstration can be achieved through an approved Study Abroad Program, such as MGMT/INTL 491 The European Union, an overseas internship, a service-learning course or previous life experience.

Core course in international management 3

Students must complete the following integrative course, which should be taken toward the end of the program.

MGMT/INTL 419 Doing Business in Europe

Department of Marketing and Business Law

Frank J. Franzak

Associate Professor of Marketing and Department Chair (1986)

B.S. Virginia Polytechnic Institute and State University

M.B.A. University of Maryland

Ph.D. 1984 University of Maryland

Marketing

The major in marketing endows the student with a broad working knowledge of contemporary marketing philosophy and practice. Students can choose from a variety of courses that most closely meet their interests and career aspirations. Graduates of this program will find career opportunities in marketing management, advertising, sales, marketing research, public relations and retailing among others.

Major requirements

	credits
MRBL 310 Information for Marketing Decisions	3
MRBL/INTL 378 International Marketing	3
MRBL 476 Marketing Management	3
Select six courses from the following list:	18
MRBL 371 Integrated Marketing Communications	
MRBL 372 Product Development and Management	
MRBL 373 Buyer Behavior	
MRBL 376 Dynamics of Retail Management	
MRBL 474 Personal Selling and Sales Management	
MRBL 475 Services Marketing	
MRBL/INTL 478 Global Internet Marketing	
MRBL 491 Topics in Marketing and Business Law (Marketing Topic)	
MRBL 492 Independent Study in Marketing and Business Law (Marketing Topic)	
MRBL 493 Internship in Marketing and Business Law (Marketing Position)	
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Minor in marketing

The minor in marketing is for business and nonbusiness majors. It recognizes the cross-functional nature of today's business

environment and the growing importance of the customer orientation in all organizations, public and private, for-profit and not-for-profit, domestic and global. For non-business majors in particular, the minor in marketing responds to the need for marketing knowledge and skills in a wide variety of organizations and potential career fields. It consists of 18 credit hours of 300- and 400-level marketing courses as follows: MRBL 308 Introduction to Marketing, MRBL 476 Marketing Management and 12 credits of approved electives with at least three of these 12 credits at the 400-level. All prerequisites to courses must be met. Additional information regarding the minor in marketing can be obtained from the School of Business, Office of Undergraduate Studies, Room 3119 or from the chair of the Department of Marketing and Business Law.

Post-baccalaureate certificate in marketing (PBC/MKT)

The post-baccalaureate certificate in marketing program is designed for persons who already have earned a baccalaureate degree in fields other than marketing, yet desire an extensive and current knowledge of marketing. Graduates will recognize 1) the cross-functional nature of today's business environment, and 2) the growing importance of the customer orientation in all organizations, public and private, profit and nonprofit, domestic and global.

Candidates for this certificate must complete 30 credit hours, with a minimum of 24 hours to be completed at VCU. Eight specific three-hour courses in marketing at the 300 and 400-level are required, and the student may select the six additional hours from a list of restricted electives. Prerequisites for all required and elective courses must be met.

Degree requirements for the PBC/MKT

Required courses	credits
MRBL 308 Introduction to Marketing	3
MRBL 310 Information for Marketing Decisions	3
MRBL 371 Integrated Marketing Communications	3
MRBL 372 Project Development and Management	3
MRBL 373 Buyer Behavior	3
MRBL 378 International Marketing	3
MRBL 475 Services Marketing	3
MRBL 476 Marketing Management*	3
	24

Electives

6

Students will select two of the following courses:

- ECON 210 Principles of Economics (micro)**
- MGMT 301 Business Statistics
- MRBL 376 Dynamics in Retail Management
- MRBL 474 Personal Selling and Sales Management
- MRBL 478 Global Internet Marketing
- MRBL 491 Topics in Marketing and Business Law (Marketing Topic)
- MRBL 493 Marketing Internship

Total

30

* MRBL 476 must be taken after completing 15 credit hours of marketing courses.

** ECON 210 is required of students who transfer three hours of credit for an Introduction to Marketing or Principles of Marketing course from another institution where Principles of Economics is not a prerequisite to the introductory course.

Preparation for the Study of Law

Carol D. Rasnic

Department of Marketing and Business Law, Adviser

Husain M. Mustafa

Political Science, Adviser

James L. Hague

Criminal Justice, Adviser

Few law schools list specific undergraduate courses as prerequisites for admission. Therefore, the student considering law school may major in virtually any department in the College of Humanities and Sciences or the School of Business. However, students are encouraged to obtain a broad liberal arts background with emphasis on the social sciences and English. The advisers to pre-law students maintain continual contact with law school admissions offices and will assist any interested student who has questions about curriculum, financial assistance, application procedures or the Law School Admissions Test (LSAT).

Graduate programs in business and economics

The School of Business offers graduate work leading to the degrees of master of business administration, master of science in business, master of arts in economics, master of accountancy, master of taxation, and the doctor of philosophy in business. These programs prepare candidates for respon-

sible participation in business, industry, government and education. Details of these programs are presented in the Graduate and Professional Programs Bulletin, which can be received by writing to the Director of Graduate Programs, School of Business, Virginia Commonwealth University, 1015 Floyd Ave., Richmond, VA 23284-4000.

External affairs

Charles J. Gallagher

Associate Dean for External Affairs

The associate dean for external affairs has primary responsibility for coordinating all School of Business activities that reach into the community. This office monitors the overall direction of the activities of the Virginia Council on Economic Education, the noncredit aspects of real estate, insurance and small business programs, and other external activities not directly related to academic degree programs. The director of development assists the School of Business Alumni Association with its activities and programs and coordinates all fund-raising projects for the school.

Alfred L. Blake Chair of Real Estate

This chair is endowed by the Virginia Realtors Foundation. It provides financial assistance to the endowed chair-holder for research and support services. Its purpose is to promote an understanding of real estate operations by offering both credit and noncredit courses.

Employment Support Institute

ESI is a research, demonstration and training center providing technology-enhanced decision support and team facilitation. Its mission is "helping people make better decisions about employment options and policies."

ESI creates opportunities for community participants, legislators, advocates, faculty, students and employers to learn and use decision support technologies related to social service policies. ESI has developed applications focused on options and policies affecting persons with disabilities.

ESI provides decision support to help people navigate employment support benefits and to improve related policy and legislation.

Institute for Enterprise-wide Solutions

The mission of the institute is to promote the free exchange of knowledge about enterprise-wide information systems. A primary goal is to improve competitiveness by helping organizations establish corporate cultures that internalize the learning and values needed to fully realize the benefits from investing in enterprise-wide systems. IES is a joint initiative among Virginia's Center for Innovative Technology and Virginia Commonwealth University's Department of Information Systems and its Information Systems Research Institute. Corporate sponsors of IES include IBM, J.D. Edwards, Philip Morris USA, SAP America and others.

Information Systems Research Institute

The Information Systems Research Institute is the professional outreach office of the Department of Information Systems. Recognized as a model center, ISRI provides programs that integrate teaching, applied research and professional workforce development. Under the supervision of faculty, students apply knowledge and skills learned in the classroom, gaining on-the-job experience and earning financial support. ISRI connects students and faculty to business and government to leverage experiences and talents so that each remains competitive in the rapidly changing world of information systems and technology.

Insurance Studies Center

This program educates and promotes awareness in the areas of risk management, insurance, financial services and employee benefits. It also offers academic and professional programs in conjunction with area insurance professionals.

Interactive Marketing Institute

IMI is a research and training center for marketing studies housed in the Department of Marketing and Business Law. The institute provides a comprehensive set of marketing services for faculty, students, businesses and not-for-profit agencies, which includes a full range of research services, presentations, continuing professional educational seminars and workshops. Most notably, the

IMI sponsors the Direct Marketing Certification, a comprehensive, modular program of instruction and practice for marketing professionals.

Small Business Development Program

Participating students in this program consult, counsel and research problems of a particular business. Students are encouraged to design extensive plans to implement their solutions.

Virginia Council on Economic Education

The council encourages and promotes a better understanding of economics and the American economy among Virginia school administrators, teachers, community leaders and the general public. VCU is one of nine statewide centers on economic education.

Virginia Family Business Forum

The forum addresses many of the unique problems encountered by family firms. It provides family business owners and key personnel with valuable information and timely educational programs in a practical, usable format in an atmosphere that allows for interaction with similar firms.

The forum offers three seminars per year featuring leading experts and family business owners who address current issues of importance to family firms. It provides business owners the opportunity to benefit from the experiences of their peers.

The forum also holds quarterly educational breakfast meetings and publishes a quarterly newsletter.

Virginia Labor Studies Center

The Virginia Labor Studies Center is committed to developing leadership for the improvement of labor-management relationships in the commonwealth. The center endeavors to develop an improved public perception of labor-management relations and improve productivity through more advanced labor-management relations.

The planning and administering of its various outreach efforts are done through work with both the labor and management community as well as other interested organizations and individuals. The center assists

both labor and management in developing research and education programs.

Virginia Real Estate Center

The center provides information on current market trends to educators, real estate professionals and the general public. The center seeks innovative ideas of improving future real estate markets.

Courses in accounting (ACCT)

ACCT 202 Accounting for Non-business Majors

Semester course; 3 lecture hours. 3 credits. The course is open only to non-business students. A nontechnical introduction to the principles of financial and managerial accounting with emphasis on the use and interpretation of financial reports, managerial planning and control. The course is for the individual who seeks a basic knowledge of accounting and its uses. It is designed for the user of accounting information rather than the preparer. This course cannot be substituted for ACCT 203, 204 or 205.

ACCT 203-204 Introduction to Accounting

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MATH 141 or equivalent. Theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information.

ACCT 205 Introductory Accounting Survey

Semester course; 3 lecture hours. 3 credits. Restricted to students in the post-baccalaureate certificate programs in accounting and information systems, students seeking a B.S. in Financial Technology, students enrolled in the School of Engineering, or by permission of instructor. An accelerated course covering theoretical and technical facets of financial and managerial accounting for business. Accumulation, analysis, interpretation and uses of accounting information. May not be counted toward any of the B.S. programs offered by the School of Business other than the B.S. in Financial Technology.

ACCT 291 Topics in Accounting

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

ACCT 303-304 Intermediate Accounting I and II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisites: Competency in word processing and spreadsheets, ACCT 204, and junior standing. Grade of "C" or higher in ACCT 303 is required to take ACCT 304. Theoretical standards and procedures for accumulating and reporting financial information about business. Classification, valuation and timing involved in determination of income and asset/equity measurement.

ACCT 305 Tax Planning for Individuals

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 203. Not open to accounting majors. A general course in tax accounting concepts and procedures for students with a minimum of previous work in accounting. Emphasis is on aspects of taxation affecting the individual: federal and state income, estate, inheritance, gift, excise and payroll taxes; fundamentals

of tax planning. Credit will not be given for both this course and ACCT 405.

ACCT 306 Cost Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisites: Competency in word processing and spreadsheets, ACCT 204, and junior standing. Cost accumulation for inventory pricing and income determination. Cost behavior concepts for planning and control. Job order and process cost systems, standard costs, budgets and special topics in relevant costs for managerial decisions.

ACCT 307 Accounting Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: Competency in word processing and spreadsheets, ACCT 204, and junior standing. Examines design and evaluation of manual and computerized accounting information systems. Emphasis on the system of internal controls and the impact of computers on those controls.

ACCT 401 Governmental and Not-for-profit Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 303-304, grade of "C" or higher in ACCT 304, and junior standing. The role of accounting in the management of resources entrusted to government and nonprofit entities, including accounting and reporting standards. Accounting in municipalities and nonprofit entities such as hospitals, charitable and health organizations, and colleges and universities.

ACCT 402 Advanced Cost Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 306. An advanced conceptual cost/managerial course designed to familiarize students with the more complex aspects of cost/managerial accounting concepts including process costing, standard costing, activity-based costing, Just-in-Time inventory systems, enterprise resource planning and issues relating to the relative strengths and limitations of managerial accounting.

ACCT 403 Management Control Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: ACCT 307. An advanced conceptual management control systems course designed to expose students to the theoretical and conceptual foundations of management control systems (MCS) and to integrate accounting into the managerial decision/control process. Uses a predominantly case-oriented approach. While primary emphasis will be on integrating accounting into the management control process, significant attention also will be devoted to the behavioral issues involved in management control system design and implementation. Students also will receive hands-on experience in structuring and formulating control systems in an Enterprise Resource Planning system environment.

ACCT 404 Advanced Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisites: Grade of "C" or higher in ACCT 304 and junior standing. Financial accounting for complex business relationships, including home office-branch accounting, business combinations, consolidated financial statements, partnerships and governmental funds.

ACCT 405 Tax Accounting

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 161, 162 or equivalent competency, ACCT 204, and junior standing. Income tax legislation and the concept of taxable income; federal income tax law applicable to individuals.

ACCT 406 Auditing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301, grade of "C" or higher in ACCT 304 and ACCT 307, and junior standing. A study of the conceptual, theoretical and practical procedures applicable to auditing - both external and internal. Primary emphasis is placed upon the theory of audit evidence; the objectives, techniques and procedures for financial and operational audit reports.

ACCT 407 Advanced Auditing

3 lecture hours. 3 credits. Prerequisites: ACCT 406 and junior standing. An in-depth analysis of advanced topics in auditing. Topics include statements on auditing standards, unaudited statements, advanced statistical sampling applications and auditing in computer environments. Emphasis is given to preparing students for the auditing section of the CPA examination.

ACCT 410 Advanced Tax Accounting

3 lecture hours. 3 credits. Prerequisites: ACCT 405 and junior standing. Complex tax problems of the trust, partnership and corporation. Particular emphasis is given to tax planning.

ACCT 411 Accounting Opinions and Standards

Semester course; 3 lecture hours. 3 credits. Prerequisites: Grade of "C" or higher in ACCT 304 and junior standing. A technical course concerned with pronouncements of the public accounting profession. The course objective is to familiarize students with present and proposed accounting opinions and standards.

ACCT 481-482/MRBL 481-482 Law for Accountants I and II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: Senior accounting major or permission of instructor. Provides detailed examination of laws that are of particular importance to accountants, along with ethical considerations and social and political influences. First semester: contracts, sales, agency, commercial paper, secured transactions and bankruptcy. Second semester: security regulations, antitrust, partnerships, corporations, suretyship, insurance, wills and trusts. Students may not receive degree credit for MRBL 481-482 and for MRBL 323, 324.

ACCT 491 Topics in Accounting

Semester course; variable credit. Maximum of three credits per course; maximum total of six credits for all topic courses. Prerequisite: Junior standing. An in-depth study of a selected business topic, to be announced in advance.

ACCT 492 Independent Study in Accounting

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as a major in a business curriculum, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

ACCT 493 Internship in Accounting

Semester course; 3 credits. Prerequisites: Senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. Graded as pass/fail at the option of the department.

Courses in e-business (EBUS)

EBUS 201 Introduction to E-business

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 160 or CMSC 128, permission of instructor. Introduces students to management, marketing and legal considerations generated by electronic business activities. Topics include: the role of technology in organizational design and supply chain management; online contracts, intellectual property and jurisdiction of crimes committed using computers; online consumer behavior, business-to-business and business-to-consumer exchanges, and Internet marketing.

EBUS 202 Introduction to E-business Technologies

Semester course; 3 lecture hours. 3 credits. Prerequisite: EBUS 201 or permission of the instructor. Introduces students to the technologies used in e-business. Students will be introduced to current or emerging Web languages, e-business suites, software packages, Web application servers and other packages used in creating and running Web applications.

Courses in economics (ECON)

ECON 101/INTL 102 Introduction to Political Economy

Semester course; 3 lecture hours. 3 credits. Seminar on the development of critical thought and economic analysis of policy issues. Focus is on how policy choices affect society and the individual, the economic methodology that guides policy choices, and the institutional and political environments within which policy is derived. Issues cover a broad range of topics including environmental issues, tax policy, inflation expectations, unemployment, foreign trade and the effectiveness of fiscal and monetary policies.

ECON 203 Introduction to Economics

Semester course; 3 lecture hours. 3 credits. A survey of economic principles, institutions and problems. The course is designed to provide basic economic understanding for students who do not expect to major in economics or in the School of Business. No degree credit for economics and business majors.

ECON 205 The Economics of Product Development and Markets

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 141. An introduction to some of the fundamental economic concepts necessary to effectively operate in today's marketplace. Basic elements of microeconomics, net present value analysis and market strategy will be covered in class. The goal is to provide students with a better understanding of how to approach business problems and of proven problem solving techniques. Appropriate for engineering and non-engineering students.

ECON 210-211 Principles of Economics

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MATH 001 or satisfactory score on the Mathematics Placement Test. A course designed to acquaint the student with a theoretical and practical understanding of the economic institutions and problems of the American economy. First semester: Microeconomics. Second semester: Macroeconomics.

ECON 291 Topics in Economics

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

ECON 301 Microeconomic Theory

3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. Analysis of the principles that govern production, exchange and consumption of goods and services. Topics include demand analysis, production and cost theory, price and output determination, theory of markets and distribution theory.

ECON 302 Macroeconomic Theory

3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. A general survey of national income analysis and macroeconomic theory. Detailed study of public policies affecting price levels, employment, economic growth and the balance of payments.

ECON 303 Managerial Economics

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211, MGMT 212 or MATH 200, and junior standing. Application of tools of economic analysis to allocation problems in profit and nonprofit organizations. Models for evaluating revenue, production, cost and pricing will be presented. Emphasis on developing decision rules for turning data into information for solving problems. Students may not receive credit for ECON 203, ECON 210 or ECON 211.

ECON 305 Public Finance - State and Local

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. An economic analysis of state and local government budgeting, revenue sources and expenditures. Students may not receive credit for ECON 203, ECON 210 or ECON 211.

ECON 306 Public Finance - Federal

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. An economic analysis of the fiscal decision process, revenue sources and expenditures at the federal level.

ECON 307 Money and Banking

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211, or ECON 203, and junior standing. A study of money, financial markets and the financial structure with emphasis on commercial banks and the Federal Reserve System. Relationships between economic activity and money supply are introduced.

ECON 312 E-commerce and Markets for Information Goods

Semester course; 3 lecture hours. 3 credits. Prerequisite: ECON 203 or ECON 205 or ECON 210. This course surveys the ways that information and emerging information technologies affect market organization and market efficiency. Competitive strategies and regulatory policy for information markets also are considered. Topics include network effects, first mover advantages, auctions, price discrimination and organizational structure.

ECON 313 Economics of Transportation

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. An economic analysis of the transportation industry with special emphasis on regulation, public policy, and urban transportation.

ECON 315/AFAM 315/INTL 315 Economic Development

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. Introduction to the process of economic development. Surveys development theory and experiences of underdeveloped countries of Africa, Asia, Latin America and the Caribbean and of developed countries. Explores obstacles to development and policies and tools for stimulating economic development.

ECON 321/URSP 321 Urban Economics

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210 or ECON 203, and junior standing. An introduction to urban economics, with an emphasis on the economics of agglomeration and the role of externalities in the urban economy. Economic analysis of the provision of urban public services and urban public financing, especially in politically fragmented areas.

ECON 325 Environmental Economics

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. The application of economic analysis to externalities such as air and water pollution, pesticide control, land use planning and other environmental issues. The role of cost/benefit analysis in the decision-making process is developed. Efficiency and equity issues are evaluated.

ECON 329/INTL 329 International Economics

3 lecture hours. 3 credits. Offered: II. Prerequisites: ECON 210-211 and junior standing. An analysis of economic and political influences on exports and imports, balance of payments, foreign investment, exchange rates and international monetary systems.

ECON 401 Introduction to Econometrics

3 lecture hours. 3 credits. Prerequisites: ECON 210-211, MGMT 301 or STAT 210, and junior standing. Sources and uses of economic data; includes the application of statistical methods and regression analysis to time series and cross-section data to test hypotheses of micro- and macroeconomics.

ECON 402 Business Cycles and Forecasting

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. An examination of repetitive variations in business activity. The measurement and analysis of economic fluctuations and how they affect the business environment. Stresses modern forecasting techniques.

ECON 403 Introduction to Mathematical Economics

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 212 or MATH 200, ECON 210-211, and junior standing. The application of mathematical techniques to economic theory and economic models.

ECON 419/HIST 333 History of Economic Thought

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. A survey of the ideas of major economic contributors to modern economic thought. Theories of value, growth and distribution from the 18th through the 20th centuries will be presented.

ECON 421 Government and Business

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. The application of economic analysis to the behavior of business, industry and government regulation. Topics include the causes and exercise of monopoly power, antitrust enforcement, public utilities and industry studies.

ECON 431 Labor Economics

3 lecture hours. 3 credits. Prerequisites: ECON 210-211 and junior standing. Analysis of labor markets and institutions to gain an understanding of the process of wage and employment determination. Both historic and current topics are included.

ECON 489 Senior Seminar in Economics

3 lecture hours. 3 credits. Prerequisites: ECON 301 and 302, or permission of instructor. Papers on current research of enrolled students, faculty and guests. Analysis of economic theory and problems on advanced level.

ECON 491 Topics in Economics

Semester course; variable credit. Maximum of three credits per topics course; maximum total of six credits for all topics courses. Prerequisite: Junior standing. An in-depth study of a selected economic topic, to be announced in advance.

ECON 492 Independent Study in Economics

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as an economics major, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

ECON 493 Internship in Economics

Semester course; the student is expected to work at the site 15-20 hours per week. 1-3 credits. Prerequisites: Junior standing; a minimum of 3.0 GPA in economics courses; at least 15 economics credits; and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during registration for semester of credit. The internship is designed to give students practical experience in an appropriate supervised environment in the public or private sector.

Courses in finance, insurance and real estate (FIRE)

FIRE 291 Topics in Finance, Insurance and Real Estate

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

FIRE 311 Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: ACCT 204 (or ACCT 202 for non-business majors) and junior standing. Pre- or corequisite: MGMT 301. Principles of optimal financial policy in the procurement and management of wealth by profit-seeking enterprises; the application of theory to financial decisions involving cash flow, capital structure and capital budgeting.

FIRE 312 Intermediate Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 302, FIRE 311 and junior standing. Advanced topics in financial management with emphasis on the theoretical bases for the valuation of the firm.

FIRE 313 Financial Management for Small Business

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. This course emphasizes financial management needs for entrepreneurs or persons who expect to be employed in closely held corporations.

FIRE 314 Investments

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301 and FIRE 311 or permission of chair, and junior standing. An analysis of the market for long-term corporate securities. Emphasis is given to the valuation of bonds, common stocks, options and convertible securities and portfolio concepts. Designed to provide an understanding of the functioning of an efficient market.

FIRE 315 Personal Financial Planning

Semester course; 3 lecture hours. 3 credits. Designed to assist households and those providing financial services and advice to households in making complex financial decisions. Units include income and expenditure, credit, borrowing, banking, savings, insurance, home buying, investment and estate planning.

FIRE 316 Principles of Real Estate

Semester course; 3 lecture hours. 3 credits. Principles and practices of real estate development, financing, brokerage, appraisal, legal instruments and governmental land use influences.

FIRE 317 Real Property Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Real property economics and planning, marketing and management of leased properties.

FIRE 318 Real Estate Negotiating

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Introduces principles and techniques of negotiating in the marketing and financing of real estate.

FIRE 326/MRBL 326 Real Estate Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 323 or equivalent, junior standing, or permission of instructor. Legal fundamentals of real estate including contracts, concepts of title, title examination, easements, conveyances, liens and recording statutes.

FIRE 330 Regulatory Aspects of Safety and Risk Control

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Examines political, scientific and social concepts of risk that influence the regulation of certain societal hazards and threats. Includes a survey of federal and state laws, regulations and standards that impact upon employment, the environment, industrial security, consumer protection and occupational safety and health.

FIRE 332 System Safety

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Addresses the concepts and practices of system safety; included are basic system concepts, application of system safety techniques, qualitative and quantitative applications such as fault-free, failure-mode-and-effects, MORT and cost-benefit analyses.

FIRE 333 Risk and Insurance

Semester course; 3 lecture hours. 3 credits. Nature of risk; insurance and other risk handling methods; examination of basic life, health, property, and liability principles and coverages.

FIRE 334 Incident Investigation and Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Reviews various conceptual and analytical models used in accident/incident investigation strategies and reporting systems, report formats, data collection methods, causal inferences, problem identification and data analysis; in-depth case studies and epidemiological reviews of recent events will be emphasized.

FIRE 413/INTL 413 Comparative Financial Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. An analysis of the structure and functioning of financial systems in different parts of the world. Emphasis is on the evolution of such systems in relation to the U.S. financial system. Different regions of the world may be studied in different semesters.

FIRE 414 Security Analysis and Portfolio Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 302, FIRE 314 and junior standing. A detailed analysis of stocks and bonds as well as options and futures. Emphasis is on models for portfolio selection, revision and performance evaluation.

FIRE 416/INTL 416 International Financial Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. Financial management of business in an international environment. Emphasis on tools and techniques to prepare financial managers of multinational firms to effectively respond to the challenges of the international environment.

FIRE 417 Cases in Financial Management

3 lecture hours. 3 credits. Pre- or corequisites: FIRE 312 and junior standing. Cases involving financial decisions for various forms of business enterprises.

FIRE 423 Real Estate Brokerage

Semester course; 3 lecture hours. 3 credits. Prerequisite: FIRE 316 and junior standing, or permission of instructor. Considers administrative principles and practices of real estate brokerage, financial control and marketing of real property.

FIRE 424 Property and Liability Insurance

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 333, or permission of instructor, and junior standing. Property and liability risk identification and measurement. Major commercial line coverages including fire, marine, automobile, general liability, worker's compensation, fidelity and surety bonds.

FIRE 425 Real Estate Appraisal

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing or permission of instructor. Designed for persons who have completed a course in principles of real estate or its equivalent, or have experience in the real estate field. Topics include neighborhood and site analysis using cost, market and income approaches.

FIRE 426 Life and Health Insurance

3 lecture hours. 3 credits. Prerequisite: Junior standing. The function, nature and uses of life and health insurance and annuities; operational aspects of life insurance companies. Full-time students who pass this course can receive credit for the CLU HS323 examination from the American College. See instructor for details.

FIRE 428 Employee Benefit Planning

Semester course; 3 lecture hours. 3 credits. Management of group life, health, disability and retirement plans. New developments in employee benefits, plan design, administration, cost, funding, regulation and tax considerations.

FIRE 429 Real Estate Finance

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing or permission of instructor. Instruments, techniques and institutions of real estate finance; the mortgage market; financing process; mortgage risk analysis; creative financing; emphasis on policies and procedures used in financing residential and commercial properties.

FIRE 430 Issues in Risk Management and Insurance

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. The course focuses on the timely issues in the field of risk management and insurance. It looks at the role of government and the insurance industry, and the use of other financial solutions in handling risks faced by businesses and individuals. The topics covered change to reflect current societal and industry issues and to explore new risk management innovations.

FIRE 431 Advanced Real Estate Appraisal

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 425 and junior standing or permission of instructor. Provides a comprehensive study of the principles and concepts underlying the income approach to investment property appraisal and the mathematics of yield capitalization.

FIRE 432/MRBL 432 Insurance Law

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. The legal concepts and doctrines applicable to insurance. Fundamental legal aspects of life, health, property and liability insurance.

FIRE 437 Funds Management in Financial Institutions

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 311 and junior standing. Funds management techniques for selected financial institutions including investment companies (mutual funds), life and casualty insurers, savings and loans, mutual savings banks, commercial banks, pension funds.

FIRE 444/MGMT 444 Occupational Safety, Health and Security

Semester course; 3 lecture hours. 3 credits. Covers the principles and practices, and regulatory dimensions of occupational safety, health and security. Causes of workplace health hazard exposures, accidents and domestic and international industrial violence are studied with an emphasis on prevention. Characteristics of effective occupational safety, health and workplace security programs are studied to facilitate understanding and application in the workplace.

FIRE 455 Options, Futures and Swaps

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 312 or FIRE 314, and junior standing. Analysis and valuation of speculative securities and markets, including options, futures and swaps with emphasis on their use for hedging and speculative purposes. Major valuation models and term structure models are discussed with applications to problems in finance considered.

FIRE 465 Managing Financial Risk

Semester course; 3 lecture hours. 3 credits. Prerequisites: FIRE 314, STAT 321 and junior standing. Sources of financial risk. Enterprise-wide financial risk software such as SAS Risk Dimensions (or similar software) will be utilized to learn about value at risk, credit risk, stress testing financial risk management models and how to manage financial risk.

FIRE 466 E-business Risk Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: EBUS 201 and EBUS 202, or permission of instructor, and junior standing. An analysis of the risks associated with e-business and the practice of e-commerce.

FIRE 491 Topics in Finance, Insurance and Real Estate

Semester course; variable credit. Maximum of three credits per course; maximum total of six credits for all topic courses. Prerequisite: Junior standing. An in-depth study of a selected business topic, to be announced in advance.

FIRE 492 Independent Study in Finance, Insurance and Real Estate

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as a major in a business curriculum, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

FIRE 493 Internship in Finance, Insurance and Real Estate

Semester course; 3 credits. Prerequisites: Senior standing with a major in finance (either the finance or insurance track) or real estate, a minimum GPA of 2.8 and permission of the Department of Finance, Insurance and Real Estate chair or the director of the insurance or real estate program. Involves students in a meaningful experience in finance, insurance or real estate. Intention to enroll must be indicated to the chair or appropriate program director.

Courses in information systems (INFO)

INFO 160 Introduction to Windows and the Internet

Semester course; 1 credit. Familiarizes students with basic computer concepts and introduces them to the microcomputer environment and the Internet. Topics include an introduction to hardware and software, accessing the Internet and the use of Web browsers as well as hands-on experience with a windows-based microcomputer system and the Internet. This course requires no prior knowledge of computers and it provides the necessary foundation for introductory application courses. Administered as a self-paced, computer aided instructional course. Graded as pass/fail.

INFO 161 Introduction to Microcomputer-based Word Processing Packages

Semester course; 1 credit. Prerequisite: INFO 160 or equivalent knowledge. Introduces students to fundamental use of a microcomputer-based word processor. Topics include document preparation and modification, tab sets and indentation, bullets and lists, and table formats. The course will help students prepare documents and papers that other VCU course work may require. Administered as a self-paced, computer aided instructional course. Graded as pass/fail.

INFO 162 Introduction to Microcomputer-based Spreadsheet Packages

Semester course; 1 credit. Prerequisite: INFO 160 or equivalent knowledge. Introduces students to fundamentals of spreadsheet processing on the microcomputer. Topics include the entering of text, numbers and formulas, formatting, moving, copying, recalculation, graphing, retrieving, saving, and printing. The course will help students prepare financial analyses and products other VCU course work may require. Administered as a self-paced, computer aided instructional course. Graded as pass/fail.

INFO 163 Introduction to Web Page Design and Application Software

Semester course; 1 credit. Prerequisite: INFO 160, 161 or equivalent knowledge. Introduces students to Web page design and construction using application software. Topics include Web page creation and modification, hypertext links, tables, graphics, and Web site organization. Administered as a self-paced, computer-aided instructional course.

INFO 164 Intermediate Microcomputer-based Word Processing Packages

Semester course; 1 credit. Prerequisite: INFO 160, 161 or equivalent knowledge. Introduces students to intermediate use of a microcomputer-based word processor. Topics to include master documents, mail merge, directories, professional newsletters, forms, macros and linking to other applications. This course is designed for those students with some prior experience with computer-based word processing packages and will assist students with academic and professional career development. Administered as a self-paced, computer-aided instructional course. Graded as pass/fail.

INFO 165 Intermediate Microcomputer-based Spreadsheet Packages

Semester course; 1 credit. Prerequisite: INFO 162 or equivalent knowledge. Topics include the creation and use of macros, advanced formulas, statistical and financial functions, and lists. Designed for those students with some prior experience with computer-based spreadsheets. Administered as a self-paced, computer-aided instructional course.

INFO 166 Introduction to Microcomputer-based Database Packages

Semester course; 1 credit. Prerequisite: INFO 160 or equivalent knowledge. Introduces students to the fundamental use of a microcomputer-based database management system package. Topics include creating and editing tables and forms, sorting and filtering data and generating reports and mailing lists. Designed for those students not majoring in information systems. Administered as self-paced, computer-aided instructional course. Graded as pass/fail.

INFO 167 Introduction to Internet Researching

Semester course; 1 lecture hour. 1 credit. Prerequisite: INFO 160 and 161 or equivalent. Course emphasizes Internet search tools and research skills development while expanding students understanding of the World Wide Web and its resources. Students will learn to explore and evaluate the various types of search sites, including the VCU Library Internet resources and learn skills for developing researching strategies. Using a microcomputer-based Web browser such as Internet Explorer or Netscape, students will learn about advanced browser features that will aid them in their search efforts. This course provides the necessary foundation to help students better find and use Web resources for documents and papers that other VCU course work may require.

INFO 168 Introduction to Microcomputer-based Presentation Packages

Semester course; 1 credit. Prerequisite: INFO 160 or equivalent knowledge. Familiarizes students with the fundamental use of a microcomputer-based presentation package. Topics include creating and editing presentations, creating and modifying drawing objects and adding clip art. The course will help students prepare presentations and products other VCU course work may require. Administered as self-paced, computer aided instructional course. Graded as pass/fail.

INFO 169 Multimedia Presentations

Five-week course; 1 lecture hour. 1 credit. Prerequisite: INFO 168 or equivalent knowledge. Familiarizes students with the fundamental use of multimedia to enhance presentations. Topics include adding animation, creating templates, linking to other resources as well as audio and video. The course will help students to prepare more effective and professional presentations.

INFO 250 Introduction to Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 160 or equivalent knowledge. Introduces students to writing, testing and debugging Java programs using simple logic and algorithms. Basic Java Applets and the Graphic User Interface (GUI) are covered. Cannot be used as an elective in the information systems major.

INFO 291 Topics in Information Systems

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

INFO 300 Computer Hardware and Software

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: INFO 250 or equivalent. Principles of computer hardware and software architecture, organization and operation. Introduction to data structures.

INFO 350 Intermediate Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: A grade of "C" or better in INFO 250 or equivalent knowledge. Pre- or corequisite: INFO 300. Complex algorithms and hierarchical Java class libraries are introduced. The course emphasizes building business applications using Java Swing components, events and message handling. HTML and Web site generation are covered. Students cannot receive credit for both CMSC 256 and INFO 350.

INFO 360 Business Information Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 160, INFO 161, INFO 162 or equivalent knowledge and sophomore standing. Provides an understanding of the importance of computer-based information in the success of the firm. Emphasis is on the role of information systems within each of the functional areas of business. Major concepts include data management, decision support and management information systems.

INFO 361 Systems Analysis and Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 360 and junior standing. Examines the concepts, tools and techniques used to develop and support computer-based information systems. Systems planning, analysis, design and implementation are covered. Behavioral and model building aspects of systems development are emphasized throughout.

INFO 370 Fundamentals of Data Communications

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 300 and junior standing. Introduction and overview of computer networks and data communications. Provides an understanding of the underlying concepts of computer networking. Emphasis is placed on terminology, techniques and issues in networking systems.

INFO 450 Advanced Programming

Semester course; 3 lecture hours. 3 credits. Prerequisites: A grade of "C" or better in INFO 350 and junior standing. The course covers advanced programming concepts using the Java and C++ languages. Topics include pointers, advanced GUI components and the building of multithreaded applications containing reusable components based upon design patterns and advanced data structures. Students cannot receive credit for both CMSC 245/246 and INFO 450.

INFO 451 Java Support for E-business

Semester course; 3 lecture hours. 3 credits. Prerequisites: Grades of "C" or better in INFO 350 and INFO 464 and junior standing. The course focuses on the technical aspects of developing of e-business systems using Servlets and JSP. It will integrate the student's prior knowledge of GUI development on the client-side with server-side Java applications in a multi-tiered environment that includes database connectivity. Students will use XML, messaging and distributed registries along with Web Services to support the sharing of data and processes for e-business applications.

INFO 461 Information Systems Planning

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361 and junior standing. Concentrated study of planning methods and techniques required for defining, planning, integrating and implementing information technology projects consistent with the organizational strategic plan and mission.

INFO 463 Business Process Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361 and permission of instructor, and junior standing. A survey of legacy system re-engineering technologies in which the student becomes familiar with a variety of tools used in practice and has the opportunity to develop applications using these tools under supervision. Selection of technologies is determined each semester.

INFO 464 Database Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 250, INFO 361 and junior standing. Designed to prepare students for development of systems involving databases and database management.

INFO 465 Projects in Information Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361, INFO 464 and junior standing. The student's behavioral and technical skills developed in INFO 361 and INFO 464 are challenged by participating in a team systems development project. Appropriate computer assisted software engineering (CASE) tools are used throughout the project, from requirement specification to implementation and testing.

INFO 468 Information Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 361, INFO 464, permission of instructor and junior standing. A study of information engineering as a model-based, data-centric approach to integrating organizational strategic planning with enterprise information systems development. Involves readings, group discussion and case studies.

INFO 472 LAN Administration

Semester course; 3 lecture hours. 3 credits. Prerequisites: INFO 370 and junior standing. Reviews the various types of Local Area Network (LAN) technology, with a strong emphasis on their underlying protocols. This conceptual basis is complemented with a hands-on introduction to LAN administration using some of the most commonly deployed network operating systems (NOS's).

INFO 474 Internetworking and TCP/IP

Semester course; 3 lecture hours. 3 credits. Prerequisite: INFO 370 and junior standing. In-depth discussion of the TCP/IP protocol suite and its application to internetworking. Other topics include security and application protocols.

INFO 491 Topics in Information Systems

Semester course; variable credit. Maximum of three credits per course; maximum total of six credits for all topic courses. Prerequisite: Junior standing. An in-depth study of a selected business topic, to be announced in advance.

INFO 492 Independent Study in Information Systems

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as a major in a business curriculum, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

INFO 493 Internship in Information Systems

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: 3.2 GPA in major, permission of director of ISRI, INFO 370 and 465. Intention to enroll must be indicated to director prior to or during advance registration of the semester of credit. Involves students in a meaningful experience, typically 20 hours per week, in a setting appropriate to the major. Students enrolled in INFO 493 may register for a maximum of six credit hours of other course work.

Courses in management (MGMT)

MGMT 121 The Business Environment

Semester course; 3 lecture hours. 3 credits. Not open to juniors and seniors in the School of Business. Concepts and issues in contemporary business.

MGMT 171 Mathematical Applications for Business

Semester course; 3 lecture hours. 3 credits. Prerequisites: Basic spreadsheet knowledge and MATH 141 or equivalent. (Equivalency may be validated by a satisfactory score on the VCU Mathematics Placement Test.) Formulation and solution of problems using a spreadsheet and algebra, mathematics of finance, basic probability and the creation of decision alternatives in the face of uncertainty. A spreadsheet will be used throughout as a calculation and graphing tool.

MGMT 212 Differential Calculus and Optimization for Business

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 171. Univariate and bivariate differential calculus and optimization of algebraic functions that model business phenomena. A spreadsheet will be used as a calculation tool.

MGMT 291 Topics in Management

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

MGMT 301-302 Business Statistics

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: MGMT 212. Statistical methods employed in the collection and analysis of business and economic data and applications in decision making. First semester: statistical thinking, concepts of variability, process studies, data collection, descriptive measures, probability and introduction to statistical inference. Second semester: continuation of statistical inference, regression and correlation analysis with emphasis on problem formulation and interpretation. Students may not receive degree credit for both MGMT 301 and STAT 210.

MGMT 319 Organizational Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Introduction to the determinants and consequences of human behavior and task performance in an organizational setting. Topics include motivation, job design, group development, organizational design, communication, leadership and change.

MGMT 320 Production/Operations Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301, MGMT 319 and junior standing. Discipline of management and the management process within the operations of an organization. Planning and controlling of operations through decision analysis, forecasting, aggregate planning, inventory management and quality management.

MGMT 325 Organizational Communication

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGL 101-200 and junior standing. A study of writing for interpersonal, group and organizational communication, including the preparation of standard business documents.

MGMT 327/ENGL 327 Business and Technical Report Writing

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing; ENGL 200 and three credits in 200-level literature courses (or equivalent). Development of critical writing skills used in business, science, technology and government, including instructions, descriptions, process explanations, reports, manuals and proposals. The course will include such topics as communication theory, technical style, illustrations, formats for proposals, reports and manuals.

MGMT 329/INTL 327 Introduction to Intercultural Communication

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. An introduction to the basic concepts, principles and skills for improving verbal and nonverbal communication with persons from different cultures. Using a cultural general approach, topics discussed include the concept of culture, barriers to intercultural communication, verbal communication process and nonverbal communication aspects. Appropriate for business and non-business majors.

MGMT 331 Human Resource Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Introduces students to the role of human resource management (HRM) in attracting and retaining a productive workforce. Includes human resource planning, recruitment and selection; employee diversity and development; performance appraisal and reward systems; labor and employee relations; and public policy related to HRM practices.

MGMT 334 Managing Dynamic Organizations

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 319 and junior standing. Applies macro-organization theory to organization design. The design of structure and process to improve effectiveness. Relationships between technology and structure; strategy and environment; power and politics; culture and organization; and growth, decline and revival.

MGMT 339 Management Science

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301 and junior standing. Concepts and techniques of management science as they apply to solving business problems, with a focus on applications. Includes linear programming, transportation method, PERT/CPM, queuing models and simulation.

MGMT 346 Technology and the Management Process

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Study of the impact of information technology (IT) on the managerial process, workgroups and communication. Specific topics include IT applications for information workers, nontraditional work environments, environmental ergonomics, security and electronic monitoring of employees, identification and selection of end-user IT, and technology and organizational change.

MGMT 350 Introduction to Project Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Introductory exposure to and practice with the concepts of project management, the activities and skills of project managers, the prevalence of projects in organizations and the value of project management skills for all managers. Students will employ project management terminology, participate in project work, and engage in the appropriate technical and interpersonal processes for managing successful projects.

MGMT 385 Production/Operations Management II

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: MGMT 320 or permission of the instructor, and junior standing. Analyzes operations in organizations through consideration of product and process design, location, layout, job design, work measurement, productivity, scheduling and maintenance.

MGMT 386 Supply Chain Management

Semester course; 3 lecture hours. 3 credits. Pre- or corequisites: MGMT 320 or permission of the instructor, and junior standing. Introduction to supply chains with emphasis on management, e-commerce and globalization. Topics covered include achievement of strategic fit among members of the chain; managing information system requirements; managing economies of scale, role of cycle inventory, impact of aggregation on risk and inventory; determining the optimal level of product availability, coordination and performance measurement.

MGMT 418/INTL 418 International Management

3 lecture hours. 3 credits. Offered: II. Prerequisite: Junior standing. Management attitudes and concepts of other nations, cultures or geographic regions compared with the United States.

MGMT 419/INTL 419 Doing Business in Europe

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing and permission of instructor. Designed primarily as a core integrative course for students enrolled in the Certificate in International Management Studies, but other students are welcome. The course has three goals: a) integration of Foreign Languages, European Studies and International Management; b) infusion of other business areas relevant to doing business in Europe (such as international marketing, finance law and economics); and c) the development of cultural sensitivity and social responsibility. The course will be organized as a series of seminars with faculty and other speakers from the above disciplines.

MGMT 420 Seminar in Industrial Relations

3 lecture hours. 3 credits. Prerequisites: MGMT 331, or permission of instructor, and junior standing. Managerial decision making in labor management relationships; the collective bargaining process and the administration of labor agreements; the impact of public policy and labor legislation.

MGMT 421 Introduction to Entrepreneurship

Semester course; 3 lecture hours. 3 credits. The importance, problems and requirements of small businesses; establishing policies for prices, promotion, control and credit; regulations as well as specific strategies and opportunities related to e-business.

MGMT 422 Managing the Family Firm

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 421 or permission of instructor, and junior standing. Students are expected to develop specific strategies and approaches to enhance the effectiveness of the family firm. Designed for members of family firms as well as those who will be working in or providing goods or services for family enterprises. Topics include succession strategies; management and strategic planning; ownership issues; taxes-transfer, gift and estate; professionalizing the family firm; boards of directors in the family firm, family business growth, psychological issues, change and conflict in the family business; family relations; women in the family firm; the younger generation; consulting and education for

family business; family business in society; global and ethnicity issues in family business; culture and values.

MGMT 427/MRBL 427 Labor and Employment Relations Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 323 or permission of instructor, and junior standing. A survey of legislation and court and administrative body decisions affecting the employer/employee relationship.

MGMT 433 Compensation Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 331 and junior standing. The methods and techniques of obtaining job descriptions, job characteristics and measuring scales, job rating and the awarding of wage increments.

MGMT 434 Strategic Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in a School of Business major and completion of all School of Business core courses. Integrative course to analyze policy issues at the overall management-level involving functional areas such as production, finance and marketing, in context with the economic, political and social environment.

MGMT 435 Strategic Human Resource Management

3 lecture hours. 3 credits. Prerequisites: MGMT 331 or permission of instructor, and junior standing. A critical study of selected problems in human resource management.

MGMT 436 New Venture Initiation

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 421 or permission of instructor, and junior standing. Students engage in the development of a comprehensive business plan. Various strategies for success are explored and factors in entrepreneurial competency are discussed.

MGMT 439 Quality I

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301, or STAT 212 and permission of instructor, and junior standing. Quality concepts and tools with a focus on the use of statistical thinking in leading organizations; collection and use of data to direct actions for improvement; introduction to analytic studies; the role of process stability; statistical tools for assessing stability and improving processes.

MGMT 440 Forecasting Methods and Process

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 302 or equivalent, and junior standing. An application-oriented presentation of forecasting process and forecasting methods to support planning and decision making. Statistical forecasting methods are emphasized, including exponential smoothing, decomposition and regression. Also includes experience with computer software.

MGMT 441 Production Planning and Control Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 320, MGMT 339 and junior standing. Production planning and control systems, focusing on manufacturing firms. Topics covered include forecasting, statistical inventory control, material requirements planning and aggregate production planning.

MGMT 444/FIRE 444 Occupational Safety, Health and Security

Semester course; 3 lecture hours. 3 credits. Covers the principles and practices, and regulatory dimensions of occupational safety, health and security. Causes of workplace health hazard exposures, accidents and domestic and international industrial violence are studied with an emphasis on prevention. Characteristics of effective occupational safety, health and workplace security programs are studied to facilitate understanding and application in the workplace.

MGMT 446/INTL 446 International Human Resource Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MGMT 331. Covers the application of human resource management activities in an international environment. Similarities and differences in domestic methods are highlighted to aid understanding. Contemporary practices in the selection, development, compensation and maintenance of expatriates, impatriates, repatriates, host country nationals and third-country nationals are studied. Regulatory and cultural dimensions of countries are examined.

MGMT 447 Human Resource Information Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 331 and INFO 360, or permission of instructor. Covers contemporary human resource information software used in the primary activities of human resource management involving recruitment, selection, performance appraisal, employee benefits, pay administration, safety and health, human resource development, job analysis, human resource planning and job structuring. Emphasis is on introducing the software and practical application through hands-on experience in the computer laboratory.

MGMT 489 Managerial Applications and Skills Development

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 319, MGMT 320 and senior standing, or permission of instructor. Application, testing and critical analysis of management theories, concepts and skills. Team building and organizational culture assessment.

MGMT 491 Topics in Management

Semester course; variable credit. Maximum of three credits per course; maximum total of six credits for all topic courses. Prerequisite: Junior standing. An in-depth study of a selected business topic, to be announced in advance.

MGMT 492 Independent Study in Management

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as a major in a business curriculum, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum.

MGMT 493 Internship in Management

Semester course; 3 credits. Prerequisites: Senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. Graded as pass/fail at the option of the department.

Courses in marketing and business law (MRBL)

MRBL 291 Topics in Marketing and Business Law

Variable credit. Maximum of three credits per topic. Prerequisite: Permission of instructor. An in-depth study of selected business topics. Graded as pass/fail at the option of the department.

MRBL 308 Introduction to Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211 (or ECON 203 for non-business majors) and junior standing. An introduction to the activities involving the exchange of goods, services and ideas for the satisfaction of human wants. Marketing is examined as it relates to the other functions of the organization, to consumers and to society.

MRBL 310 Information for Marketing Decisions

Semester course; 3 lecture hours. 3 credits. Prerequisites: MGMT 301, MRBL 308 and junior standing. Students receive an overview of the marketing research process. The course includes coverage of primary research, secondary data sources and marketing information systems. Students learn to apply research findings to marketing decisions.

MRBL 323 Legal Environment of Business

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Basic legal concepts applicable to business, including the legal aspects of operating a business, contracts, employment relationships, sales, bailments and commercial paper, along with ethical considerations and social and political influences. Students may not receive degree credit for both MRBL 323 and MRBL 481.

MRBL 324 Legal Aspects of the Management Process

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 323 or permission of instructor, and junior standing. Legal aspects of partnerships and corporations; management rights, powers and responsibilities. Students may not receive degree credit for both MRBL 324 and MRBL 482.

MRBL 326/FIRE 326 Real Estate Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 323 or equivalent; junior standing or permission of instructor. Legal fundamentals of real estate including contracts, concepts of title, title examination, casements, conveyances, liens and recording statutes.

MRBL 350 Tort Law

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. Basic concepts of tort law with emphasis on intentional torts, negligence, causation, proximate cause, strict liability, nuisance, tortious interference with contract rights, misrepresentation, defamation and privacy.

MRBL 371 Integrated Marketing Communications

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 or permission of chair, and junior standing. Overviews the various steps in the development of an integrated marketing communications program, including advertising, public relations, sales promotion, personal selling and direct marketing. Special emphasis is placed on the role of new technologies and interactive media in this context.

MRBL 372 Product Development and Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: ECON 210-211, MRBL 308 and junior standing. Study of price theory and policy relevant to goods and services. Introduction to basic product strategy, focusing on new product development, management of existing products, and elimination of marginal offerings. Various concepts will be addressed including product differentiation, the product life cycle, product design packaging, branding, positioning and related concepts.

MRBL 373 Buyer Behavior

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 and junior standing; PSYC 101 and SOCY 101 recommended. Study of the relevant psychological, sociological and anthropological variables that shape buyers' activities and motivations in household and organizational decision making. Throughout the course, students consider the issue of why consumers behave as they do in the marketplace and the nature of their choices as individual, family and institutional buyers.

MRBL 376 Dynamics of Retail Management

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 and junior standing. A comprehensive view of retailing and an application of marketing concepts in a practical retail managerial environment. Students learn to evaluate retail firms and to identify their strengths and weaknesses.

MRBL 378/INTL 378 International Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 or permission of chair, and junior standing. This course is designed to orient students toward global marketing and to develop an understanding of the differences among foreign marketing environments. Subject areas emphasized are the differences and similarities between domestic and international marketing and changes in the international marketing environment. This course also introduces students to international marketing policies.

MRBL 427/MGMT 427 Labor and Employment Relations Law

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 323 or permission of instructor, and junior standing. A survey of legislation and court and administrative body decisions affecting the employer/employee relationship.

MRBL 432/FIRE 432 Insurance Law

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing. The legal concepts and doctrines applicable to insurance. Fundamental legal aspects of life, health, property and liability insurance.

MRBL 474 Personal Selling and Sales Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: MRBL 308. Restricted to senior-level business majors or to students having permission of the department chair. Examines the fundamental nature of personal selling in the promotion mix, including the sales process and the techniques used in performing the selling function. Explains the diverse decisions and the activities necessary to manage the outside sales force efficiently and effectively to achieve the organization's overall goals.

MRBL 475 Services Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 or permission of the instructor, and junior standing. Students develop both a theoretical and practical understanding of "the service product," including the role of customer service in retail and industrial settings. Students learn techniques for analyzing and improving service system design. Students develop an understanding of "quality" as it relates to service products, and they exercise a number of approaches for assessing and improving perceived service quality.

MRBL 476 Marketing Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: Restricted to senior-level marketing majors who have completed a minimum of 15 credits of marketing courses (in addition to MRBL 308). A case course requiring the senior marketing student to apply his or her knowledge to the solving of marketing managerial problems.

MRBL 478/INTL 478 Global Internet Marketing

Semester course; 3 lecture hours. 3 credits. Prerequisites: MRBL 308 and MRBL 378 or permission of the instructor. Course examines global Internet marketing as a necessary ingredient to successful global marketing strategy in the 21st century. Students engage in analyzing international markets — market evaluation, competitive analysis, market comparison and selection — using Web-based information and tools. Discussion includes comparison of e-business versus traditional business perspectives on marketing strategies and tactics.

MRBL 481-482/ACCT 481-482 Law for Accountants I and II

Continuous course; 3 lecture hours. 3-3 credits. Prerequisite: Senior accounting major or permission of instructor. Provides detailed examination of laws that are of particular importance to accountants, along with ethical considerations and social and political influences. First semester: contracts, sales, agency, commercial paper, secured transactions and bankruptcy. Second semester: security regulations, antitrust, partnerships, corporations, suretyship, insurance, wills and trusts. Students may not receive degree credit for MRBL 481-482 and for MRBL 323, 324.

MRBL 491 Topics in Marketing and Business Law

Semester course; variable credit. Maximum of three credits per course; maximum total of six credits for all topic courses. Prerequisite: Junior standing. An in-depth study of a selected business topic, to be announced in advance. For students to receive credit toward a marketing major or minor, the topic must be a marketing topic.

MRBL 492 Independent Study in Marketing and Business Law

Semester course; 1-3 credits. Maximum total of three credits. Prerequisites: Junior or senior standing as a major in a business curriculum, approval of adviser and department chair prior to registration. Intensive study under supervision of a faculty member in an area not covered in-depth or contained in the regular curriculum. To receive credit toward a marketing major or minor, the student must focus on an area within the marketing discipline.

MRBL 493 Internship in Marketing and Business Law

Semester course; 3 credits. Prerequisites: Senior standing in the major offering the internship and permission of the department chair. Intention to enroll must be indicated to the instructor prior to or during advance registration for semester of credit. Involves students in a meaningful experience in a setting appropriate to the major. Graded as pass/fail at the option of the department.

School of Dentistry

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D.D.S. 1973 University of Iowa
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B.S. 1974 Virginia Polytechnic Institute and State University
D.D.S. 1978 Virginia Commonwealth University
M.B.A. 1984 Virginia Commonwealth University

Carolyn Booker

Assistant Dean for Students
B.S. 1976 South Carolina State University
M.A. 1977 South Carolina State University
Ph.D. 1987 Southern Illinois University

Harvey A. Schenkein

Paul Tucker Goad Professor of Periodontics and Microbiology and Immunology and Assistant Dean for Research (1978)
B.A. 1970 State University of New York
D.D.S. 1974 State University of New York
Ph.D. 1978 State University of New York

The School of Dentistry was created in 1893 when the University College of Medicine opened with a dental department as one of its original divisions. The Medical College of Virginia inaugurated a dental education program in 1897, and in 1913 the two schools were merged to form the Medical College of Virginia School of Dentistry.

In 1968, by an act of the Virginia General Assembly, the Medical College of Virginia was merged with Richmond Professional Institute to form Virginia Commonwealth University. The School of Dentistry is located at the VCU Medical Center.

The facilities of the School of Dentistry are housed in the Wood Memorial and Lyons buildings and contain clinical and research facilities, classrooms, student laboratories, departmental offices and a computer learning laboratory. The classrooms contain a full range of audiovisual equipment.

The Division of Dental Hygiene was formed in 1969 and offers courses leading to a Bachelor of Science in Dental Hygiene degree. The program requires two years of liberal arts study, with a minimum of 60 semester hours, followed by two years of study focusing on basic and dental sciences, dental hygiene theory, community health and preclinical and clinical experiences.

The Commission on Dental Accreditation of the American Dental Association accredits the Dental Hygiene Program. Upon successful completion of the program, graduates are awarded the Bachelor of Science in Dental Hygiene degree and are eligible for national, regional and state board licensing examinations.

Mission

The primary mission of the School of Dentistry is to educate practitioners of dentistry and dental hygiene capable of meeting the general oral health care needs of the communities they serve. Within this educational mission is the explicit responsibility to provide future practitioners with the analytical and technological skills that will allow them to be efficient providers of quality oral health care. Integral to the mission is the responsibility for the school to assume a prominent role in research and other scholarly activity, and to provide service and patient care to the community and the profession. Consistent with the primary mission, the School of Dentistry provides programs in advanced dental education, dental hygiene and continuing education.

The Division of Dental Hygiene believes the modern practicing dental hygienist requires a broad range of skills to function effectively. Competency in specific clinical-technical skills, while essential, will not be sufficient to meet increasing social needs and demands for comprehensive oral health care at all societal levels. The division views the dental hygienist with a baccalaureate degree as a leader not only in helping the

dental profession respond to a changing environment but in developing and initiating interventions that prevent and control oral disease and promote oral wellness, as well as in facilitating that change itself.

The division assumes a responsibility to provide current and future practitioners with skills that allow them to provide efficient, quality oral health care to the public, to be responsive to a changing profession, to be lifelong learners and to provide service to the community and the profession.

Division of Dental Hygiene

Janet L. Scharer

Assistant Professor and Program Director (1990)
A.S. 1968 Cuyahoga Community College
B.S.Ed. 1971 Ohio State University
M.A. 1974 Ohio State University

Admissions

The Division of Dental Hygiene welcomes and encourages individuals from any cultural or ethnic background who are interested in a professional career in dental hygiene to apply for admission. A minimum of 60 semester hours (or equivalent) of transferable credits from an accredited college or university is required and must be documented. Academic credits presented by an applicant must be acceptable for credit toward a degree in the institution in which the courses are taken. Minimum admission criteria include the applicant to be eligible for re-admission or in good standing at the last college or university attended; to have a minimum GPA of 2.5 based on a four-point scale in cumulative, math/science and designated prerequisite courses; and to complete the application and submit the required transcripts, references and application by Feb. 15. The transferred credits must include the prescribed prerequisites:

	credits
English	6
General biology and laboratory	3-5

College chemistry and laboratory	3-5
Anatomy and physiology and laboratory	6-8
Microbiology and laboratory	3-5
Humanities	3
Introductory sociology	3
Introductory psychology	3
Speech	3
Statistics	3
Visual/performing arts	3

To successfully complete the dental hygiene curriculum, students are required to clearly communicate with faculty, students, staff and patients. Accordingly, applicants may be required to provide evidence of their proficiency in American English via standardized tests. Applicants who do not have English as their natural language, regardless of immigration status or previous course work, must present a minimum TOEFL Score of 580 (paper) or 237 (computer) and a minimum TWE score of 4.0. TOEFL and TWE scores must be included with the application materials.

Applications received after Feb. 15 will be considered on a space-available basis. Admission to the Division of Dental Hygiene is competitive. Applicants will be notified of admission decisions by letter.

Applicants who wish to be considered for early acceptance will be considered if the following criteria are met: submission of the complete application by Oct. 15 and a GPA of 3.5 or better in the cumulative, math/science and required prerequisite courses.

Admission with advanced standing

The Division of Dental Hygiene will consider applicants for admission with advanced standing on an individual basis depending upon positions available and qualifications of the applicant.

Readmission following a health-related withdrawal

This policy statement applies to the School of Dentistry, Division of Dental Hygiene and supplements the university policy on health-related withdrawals.

Health-related withdrawals will be granted, except in unusual circumstances, for the remaining portion of the academic year in which withdrawal is approved. In no event will withdrawal exceed one academic year.

A student in the Division of Dental Hygiene who is granted a health-related withdrawal must notify the program director

by March 1 preceding the academic year in which studies are to be resumed declaring his or her intent to return to school. Failure to do so is considered a withdrawal; the student ceases to be a student in the Division of Dental Hygiene, forfeits the right to return without reapplication and must reapply through appropriate procedures if readmittance is desired.

Students who are readmitted will receive credit for only those courses that have been completed and a final grade rendered prior to withdrawal. Retention of credit for clinical requirements earned prior to withdrawal will be at the discretion of the Class Committee.

Students whose requests for withdrawal are approved by the dean for nonhealth-related reasons through the Academic Performance Committee must apply for readmission with advanced standing.

Academic Performance Committee Guidelines

The faculty of the VCU School of Dentistry has the responsibility for evaluating the student's academic performance. It is incumbent on the course directors or their designees to specify, at the time a course first convenes, the criteria to be used in student assessment and the standards by which the students will be judged.

Guidelines that govern the actions of the Academic Performance Committee and the academic activities of the students are distributed to all students at the beginning of their studies. The guidelines are available upon request from the Office of Academics in the School of Dentistry.

Financial assistance

A brief description of financial aid based on demonstrated need is contained in the "Expenses and Financial Aid" chapter of this bulletin. Scholarships and loans are available from various sources. Information on financial assistance is available upon request from the Office of Financial Affairs, School of Dentistry, Virginia Commonwealth University, P.O. Box 980566, Richmond, VA 23298-0566.

Courses in dental hygiene (DENH)

DENH 301 Dental Hygiene Theory I

Semester course; 2 lecture and 6 laboratory/clinical hours. 5 credits. Prerequisites: BIOL 209 or equivalent

and admission to the dental hygiene program. Designed to familiarize the student with the scope, role and responsibilities of the dental hygiene profession. Topics include an introduction to the educational and therapeutic services as well as the philosophy of preventive oral health and its relevance to the practice of dental hygiene. Also introduces the clinical knowledge and skills needed to perform fundamental clinical dental hygiene procedures, instrumentation and preventive services.

DENH 302 Dental Hygiene Theory II

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 301. Continuation of DENH 301. Designed to provide the student with knowledge and skills necessary to provide patient care and includes instruction in some more advanced dental hygiene skills including application of topical medicaments and use of sonic and ultrasonic instrumentation.

DENH 312 Preventive Oral Health Education

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior standing in the dental hygiene program. Introduces preventive oral health strategies, methods, materials and principles of instruction in health education and communication. Emphasizes preventive oral health concepts as they relate to individual patients, community groups as well as professional peer group presentations. Current theories on topical issues, such as fluoridation, cardiology, dental products and devices, and alcohol/tobacco/illicit drug use will be presented.

DENH 327 Clinical Dental Hygiene I

Semester course; 1 seminar and 9 laboratory/clinical hours. 4 credits. Prerequisites: DENH 310, ANAT 301, GENP 311. This course has two segments. The initial segment reinforces the knowledge and clinical skills learned in DENH 301 Dental Hygiene Theory I. Additional laboratory experiences allow the student to re-assert technical skill proficiency prior to entry into the clinical education experience. The second segment introduces the clinical practicum and dental hygiene services as part of a comprehensive care model within the School of Dentistry. Students apply basic instrumentation and patient treatment skills in a clinical setting. Seminars provide opportunity for students to problem solve and critically discuss and assess clinical experiences.

DENH 342 Nutrition

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101 or equivalent and junior standing in the dental hygiene program. Designed to provide students with an overview of the chemistry of the major nutrients as well as provide a practical approach to the concepts of nutrition. Emphasis will be placed on developing positive personal dietary habits and providing nutritional education to dental patients in a clinical setting. The interrelationships of diet, nutrition and dental diseases will be discussed along with current food trends, consumer aspects of food choices and basic nutrition principles. A general review of herbal supplements also will be provided.

DENH 401 Dental Hygiene Theory III

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 301 and DENH 302. DENH 401 is a continuation of DENH 301 and 302 with introduction of additional techniques and information for performance of advanced dental hygiene procedures. Dental specialty content is presented; concepts and techniques in specialty areas that will enable the dental hygienist to consider implications for dental hygiene treatment planning with relation to periodontics,

orthodontics, endodontics, preventive and restorative dentistry, pain control, pediatric dentistry and implantology.

DENH 402 Dental Hygiene Theory IV

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 401. This course is designed to present the principles of dental practice, including dental team management strategies, business office management, increasing use of computers in dentistry, OSHA and its impact on practice management, insurance coverage for dental care, and employment opportunities and career options.

DENH 411 Community Dental Health

Semester course; 2 lecture hours. 2 credits. Prerequisite: DENH 312. This course provides an introduction to the principles of dental public health, community dental health education and community program planning. Topics include oral epidemiology, prevention and control of oral diseases in a community, and community dental health services. Students become involved in the application of concepts such as program assessment, design, implementation and evaluation. This course will prepare the dental hygienist for the role of dental public health practitioner, educator, consultant and resource person in community settings. Information gained in DENH 411 will be applied to DENH 412 Community Dental Health Practicum.

DENH 412 Community Dental Health Practicum

Semester course; 2 lecture hours and 3 laboratory/community project hours. 3 credits. Prerequisite: DENH 312 and DENH 411. Field experience designed to prepare students to function in a variety of community health settings. Emphasis is on special populations of elementary school children, geriatric, institutionalized, hospitalized and mentally and physically disabled individuals. Participation in planning, implementing and evaluating a community dental health project is required.

DENH 422 Current Issues, the Law and Ethics

Semester course; 2 lecture hours. 2 credits. Prerequisite: Completion of all required 300-level dental hygiene courses. This course is designed to explore the ethics, jurisprudence and principles of practice. Included is a study of ethical issues and dilemmas in dental hygiene and health care delivery. This course strives to provide students with the foundations of ethical practice and understanding of the legal and ethical aspects of oral health care.

DENH 432 Special Populations Clinical Practicum

Semester course; 2 lecture hours and 3-6 clinical/laboratory hours. 3 credits. Pre- or corequisite: PHTX 441. This course considers the oral health care of the HIV-positive patient and the interrelationships of health care and social support providers. DENH 432 will prepare the dental health professional student to identify HIV-related oral manifestations and other systemic changes associated with immune system compromising diseases, implement appropriate procedures for preventing infectious disease transmission, provide HIV risk assessment and education, and provide comprehensive care to the HIV-infected patient.

DENH 437 Clinical Dental Hygiene II

Semester course; 1 seminar hour and 12 clinical/laboratory hours. 5 credits. Prerequisite: DENH 327 and completion of all required 300-level dental hygiene courses. This course is a continuation of the clinical practicum. Seminars and clinical experiences continue to prepare students to provide oral health care services.

Students participate in comprehensive care clinical experiences within the School of Dentistry as well as the specialty clinics via scheduled and supervised rotations. Advanced dental hygiene procedures are initiated and patient assessment and management skills are emphasized. This course provides the student with the opportunity to use and further enhance the knowledge and skills of dental hygiene practice and procedures in a clinical model that emphasizes comprehensive patient care and a foundation for transference of those skills to the work environment.

DENH 442 Introduction to Dental Hygiene Education

Semester course; 2 lecture hours and 3-6 clinical/laboratory hours. 3 credits. Prerequisite: DENH 312 and DENH 411. Introduction to the principles and methods of health care teaching and instructional design used in settings such as schools, community management or higher education. Topics include performance objectives; planning, analysis and formative evaluation of health instruction; basic instructional schemes and delivery systems; learning strategies; and basic principles of clinical supervision.

DENH 447 Clinical Dental Hygiene III

Semester course; 1 seminar hour and 12-15 clinical/laboratory hours. 6 credits. Prerequisite: DENH 437. This course is a continuation of the clinical practicum. Seminar and clinical experience continue to prepare the student to provide oral health care services in the private and public sector. Student's clinical experience includes rotation assignments in the clinics within the School of Dentistry as well as the specialty areas. Skill development in dental hygiene procedures continues, patient management skills as well as decision making and problem solving in relation to patient assessment, treatment planning and evaluation are emphasized. This course provides the student with the opportunity to use and further develop the knowledge and skills of dental hygiene practice and procedures in a clinical model that emphasizes comprehensive patient care and to provide a foundation for transference of those skills to the work environment in the private and public sector.

DENH 449 Clinics in Dental Hygiene

Semester course; 1 to 3 credits. Prerequisite: permission of department. Clinical/laboratory experiences offering the opportunity to use and further develop the knowledge and skills of dental hygiene practice.

DENH 450 Independent Study

Semester course; 1 to 5 credits. Prerequisite: permission of department. Independent study projects planned to meet the learning objectives of the student.

DENH 477 Special Topics in Dental Hygiene

Semester course; 1 to 3 credits. Prerequisite: permission of department. Designed around the interests of students, faculty expertise and availability of educational resources. Format may include intensive mini-courses or workshops.

Courses in general practice (GENP)

GENP 302 Dental Materials

Semester course; 1 hour lecture and 3 hours laboratory. 2 credits. Pre- or corequisite: junior standing in dental hygiene program. The goal of this course is to provide the scientific foundation for understanding the factors guiding the use of biomaterials in dentistry as they relate to the practice of dental hygiene. Dental and material

science concepts are defined and their relationships developed to establish an understanding of the influence of material properties and manipulation on the longevity and success of treatment. Dental materials are discussed in terms of their physical, mechanical, chemical, biological and esthetic properties. Factors that influence tooth sensitivity, caries prevention, tissue irritation, longevity of restoration, dental bonding, materials selection and allergic reactions are emphasized. The primary dental materials will be discussed in relation to their properties and manipulation with an approach to aid in patient education.

GENP 307 Research Methods and Biostatistics

Semester course; 2 hours lecture/laboratory. 2 credits. Prerequisite: STAT 210 or equivalent. This course is designed for dental hygiene students to become competent in the use of the scientific literature as a part of lifelong learning and for the improvement of patient care. The course covers foundational materials in biostatistics, including data collection, presentation of data, summarizing data and the development of testable hypotheses in dental hygiene research. Emphasis is placed on recognizing appropriate use of statistical analyses and research designs that can lead to answerable research questions. Students must also satisfactorily complete the examination on Protection of Human Subjects from Research Risks. This course depends heavily on the use of Web-based instruction and the use of computer software for data collection and analyses.

GENP 311 Oral Anatomy and Occlusion

10 week course. 2 lecture hours; 15-20 hours seminar/recitation and online discussion. 3 credits. Pre- or corequisite: ANAT 301, ANAT 302, admission to the dental hygiene program. This course combines lecture with readings and research for online discussion and addresses the dental terminology and the crown and root morphology of the permanent dentition. Students become familiar with the basic principles of occlusion: how teeth occlude, the diverse occlusal classifications, the arrangement of teeth in the dental arches, and the relationship of the dental arches to one another with focus on review of the anatomy and function of masticatory muscles and the temporomandibular joints. The lecture portion of the course is devoted to the didactic aspects of learning tooth anatomy. The online portion of this course is devoted to the fundamentals of occlusion and making application of both course segments to the clinical environment.

Courses in oral pathology (ORPT)

ORPT 301 Dental Radiology

Semester course. 1 hour lecture. 1 credit. Prerequisite: junior standing in dental hygiene program. This is an introductory course that covers radiation physics, radiation biology and geometrical principles as applied to radiology and radiographic anatomy. Students will study the radiographic anatomy of the head and neck and exposure and processing techniques for diagnostic radiographic examinations of the head and neck. Areas are covered with the intent to link these principles to the knowledge needed in clinical practice.

ORPT 324 Oral Pathology

Semester course. 3 hours lecture. 3 credits. Prerequisite: MICR 365, ANAT 301, ANAT 302. This course is designed to provide the student with a body of basic information on general and organ specific pathology. The purpose of the course is to enable the student to

better recognize and interpret symptoms, signs and pathologic characteristics of organ, systemic and oral disease that will be encountered in practice. Included is study relating to the etiology, pathogenesis, prognosis, prevention and treatment of oral disease. Students will study the development, reactive and neoplastic conditions of the oral cavity with emphasis placed on the more commonly occurring diseases.

Course in oral surgery (ORSG)

ORSG 431 Management of the Medically Compromised Dental Patient and Medical Emergencies in the Dental Office

Semester course; 2 lecture and 3 clinical/laboratory hours. 3 credits. Prerequisites: ORPT 324 and PHTX 441. Provides students with the knowledge and skills to provide safe and effective care for medically compromised patients. The student will have didactic and clinical experience in obtaining, recording and interpreting the findings of physical examination, obtaining and interpreting results of appropriate clinical laboratory and radiological examination, and communicating with other health care professionals. Instruction in physical evaluation provides the student with sufficient knowledge, judgment and skill to recognize normal findings as well as significant deviations from the normal. Didactic material includes a study of disease processes that affect the major organ systems of the body. In addition, students will have the opportunity to recognize and manage medical emergencies that can occur during dental treatment. Care for individuals with physical and mental disabilities will be presented with emphasis on the management of this special population in the general dental office.

Courses in periodontics (PERI)

PERI 326 Periodontics I

2 hours lecture; 15 hours recitation/seminar. 2.5 credits. Pre or corequisite: ANAT 302, BIOL 209 or equivalent, MICR 365. This course introduces the fundamental concepts of periodontal disease necessary for proper patient assessment, diagnosis, prognosis and treatment planning. This course stresses the rationale and technical aspects of examination and initial treatment of the periodontal patient. Emphasis will be placed on the etiology of periodontal diseases, rationale and outcomes of treatment. This course features small group seminars, patient-based computer simulation and clinical instruction.

PERI 329 Periodontics II

Semester course. 3 lecture hours. 3 credits. Prerequisite: PERI 326. This course covers the normal anatomy and physiology of the periodontium; provides the scientific basis to understand the pathology of the periodontal diseases; discusses the epidemiology of periodontal disease and the etiological factors that cause or contribute to periodontal disease. Students are prepared to assess patients; periodontal status and to plan initial clinical periodontal management. Examination, diagnosis, prognosis and treatment planning procedures are covered.

Other courses for dental hygiene students

Other VCU schools and the college offer courses for dental hygiene students. Please refer to the appropriate chapters of this bulletin.

School of Medicine

Courses in anatomy (ANAT)

ANAT 301 Head and Neck Anatomy for Dental Hygienists

2 lecture and 1 seminar hours. 3 credits. Prerequisite: Admission to the Dental Hygiene Program. An overview of head and neck anatomy that examines the major osteological, neural, muscular, vascular and visceral features. Lectures will be supplemented by textbook, self-study packages and by brief laboratory exercises that provide hands-on exposure to these major anatomical features.

ANAT 302 Microscopic Anatomy (Dental Hygiene)

Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. A lecture course in the microscopic anatomy of general body tissues and the oral cavity.

Courses in biochemistry and molecular physics (BIOC)

BIOC 403/CHEM 403 Biochemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, or equivalents with permission of instructor. A presentation of structural biochemistry, enzymology, biophysical techniques, bioenergetics and an introduction to intermediary metabolism.

BIOC 404/CHEM 404 Advanced Topics in Biochemistry

Semester course; 2 lecture hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, and CHEM/BIOC 403, or equivalents with permission of instructor. Presentations of cellular, molecular and structural aspects of biochemistry. Selected topics of biomedical research.

BIOC 501 Biochemistry (Dentistry)

Semester course; 5 lecture hours plus clinical correlations. 3 credits. Prerequisite: Organic chemistry, three credits of physical chemistry, or permission of instructor. A presentation of structural biochemistry, intermediary metabolism, physiological chemistry, and nutrition as part of the fundamental background of modern dentistry. Four clinical correlation workshops complement the lecture presentations.

Courses in microbiology and immunology (MICR)

MICR 365 Infection and Immunity (Dental Hygiene)

Semester course; 2 lecture hours. 2 credits. A study of infectious diseases and the immune system of humans with emphasis on the distribution properties and roles of pathogenic microorganisms and the varied responses of the host, with emphasis on oral pathologies. Principles of prevention, control, and chemotherapy of infectious diseases are major components of the course.

Courses in physiology (PHIS)

PHIS 206 Human Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 101 and 101L or equivalent. Functioning of the human body with emphasis on experimental procedures. Not applicable to the biology major.

PHIZ 206L/BIOZ 206L Human Physiology Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisites: PHIS 206. Functioning of the human body with emphasis on experimental procedures. Not applicable to the biology major.

PHIS 309 Introductory Quantitative Physiology I

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: Calculus at the level of MATH 200 and MATH 201. The course is intended for majors in Biomedical Engineering. Other students may enroll with permission of the instructor. This course is a survey course in physiology with emphasis on physical principles. It is a systems analysis of cellular anatomy, physiology and biochemistry which leads into analysis of the nervous system, musculoskeletal system and the digestive system. It is meant to be taken as part of a two-semester series with PHIS 310.

PHIS 310 Introductory Quantitative Physiology II

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: Calculus at the level of MATH 200 and MATH 201 and PHIS 309. The course is intended for majors in biomedical engineering. Other students may enroll with permission of the instructor. This course is the second semester of a survey course in physiology with emphasis on physical principles. It includes a systems analysis of the cardiovascular, respiratory, renal and endocrine systems. It is meant to be taken as part of a two-semester series with PHIS 309.

Courses in pharmacology and toxicology (PHTX)

PHTX 400 Drugs and their Actions

Semester course; 3 lecture hours. 3 credits. Prerequisites: Junior or senior or permission of instructor. This course is a general survey of pharmacology and related disciplines. The history and basic principles are presented followed by discussions of neuropharmacology, psychoactive drugs, drugs of abuse, immunopharmacology, basic toxicology, drug design, drug development, autonomic pharmacology, cardiovascular pharmacology, and endocrine pharmacology, as well as selected topics including scientific ethics, molecular pharmacology, and behavioral pharmacology.

PHTX 441 Pharmacology (Dental Hygiene)

Semester course; 5 lecture hours. 5 credits. A didactic course designed to emphasize the principles of pharmacology and pain control and the rationale of drug actions, uses, and adverse effects.

School of Education

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The primary objective of the School of Education is to prepare students for careers in education, government, health-related professions, recreation and research. All programs combine comprehensive studies in the liberal arts and sciences with professional preparation and concentration in specialized fields of study. Practical applications and field experiences are an integral part of each academic program. The School of Education is committed to preparing high-quality professionals for service in urban, suburban and rural areas.

Accreditation

The School of Education is accredited by the Virginia Department of Education, the Southern Association of Schools and Colleges, and the National Council for Accreditation of Teacher Education.

The athletic training curriculum is accredited by the Commission for the Accreditation of Allied Health Education Programs. The recreation and parks and therapeutic recreation programs are accredited by the National Recreation and Parks Association, American Association for Leisure and Recreation, and National Council on Accreditation. The school also holds membership in the American and Virginia Association of Colleges for Teacher Education and in the Holmes Partnership.

Mission

The School of Education is committed to excellence in the initial preparation and continuing development of professionals for leadership, teaching, service and scholarly inquiry in culturally diverse settings across the life span. The school emphasizes early childhood through secondary education and lifelong learning; scholarship that extends knowledge and improves practice; and collaboration that connects the school to the field of practice and supports schools and relevant educational and human service agencies.

The School of Education, as an integral part of a major urban research university, subscribes to and promotes the following values:

1. A school that provides the highest quality of teaching and learning.
2. A diverse community of learners and scholars who, guided by democratic principles of participation, demonstrate a commitment to:
 - high professional standards and sustained faculty development.
 - a collaborative approach to teaching, scholarship and service both within and across disciplines.
 - inquiry that results in the scholarship of application, integration and

teaching as well as the scholarship of discovery.

- the nurturing of national and international relationships.
3. A leader providing quality education for students with individual and diverse needs. The school's graduates:
 - demonstrate a body of knowledge from a foundational core appropriate to their specialization(s) and
 - exhibit values and behaviors appropriate for effective professional practice in a democratic society.
 4. A partnership with public and school communities in addressing today's educational challenges.

Organization

The chief administrative office for the School of Education is the Office of the Dean, Room 2090 Oliver Hall. Three associate deans assist in the administrative functions of the school. The senior associate dean for academic affairs is responsible for all academic programs offered by the school and assists each department in the administration of the various degree programs. The associate dean for students is responsible for the administrative areas related to student admissions, matriculation, student appeals and graduation applications. The associate dean for faculty affairs is responsible for the professional development and evaluation of all faculty in the school.

The school is organized for the management of instruction and degree programs into eight departments: counselor education, educational leadership, exercise science, foundations of education, recreation, parks and sport management, special education and disability policy, teacher education in health and physical education, and teaching and learning. Six of the departments offer undergraduate course work or programs that lead to an undergraduate

degree and/or a Master of Teaching (M.T.) degree including:

- Exercise Science
- Foundations of Education
- Recreation, Parks and Sport Management
- Special Education and Disability Policy
- Teacher Education in Health and Physical Education
- Teaching and Learning

Two departments offer graduate degrees only:

- Counselor Education
- Educational Leadership

Department of Exercise Science

Offers undergraduate programs leading to a Bachelor of Science in Health, Physical Education and Exercise Science with concentrations in athletic training, applied health science, clinical exercise science and community health education. Additional concentration options in pre-medicine, pre-physical therapy and pre-occupational therapy are available. A Master of Science in Health and Movement Sciences and a new interdisciplinary Ph.D. in Rehabilitation and Movement Science also are available.

Department of Foundations of Education

Offers multidisciplinary, liberal education perspectives that provide an essential link between theory and practice. The department offers undergraduate and graduate course work in the historical, cultural, psychological and ethical foundations of education. All programs leading to a Virginia licensure have required course work in the foundations of education. Foundations play an integral role in the Ph.D. in Education program by teaching required courses in urban education, research methods and other elective courses.

Department of Recreation, Parks and Sport Management

Offers undergraduate programs leading to a Bachelor of Science in Recreation, Parks and Sport Management with concentrations in recreation and park management,

sport management, and therapeutic recreation. Additional concentration options in pre-physical therapy and pre-occupational therapy are available in the therapeutic recreation major. A Master of Science in Recreation, Parks and Sport Leadership is available for students interested in leisure service management, therapeutic recreation or sport leadership.

Department of Special Education and Disability Policy

Offers extended teacher preparation programs that allow students to prepare for professional roles as teachers of students with emotional disturbance, learning disabilities or mental retardation. These five-year programs culminate in the simultaneous awarding of both a bachelor's degree from the College of Humanities and Sciences and a Master of Teaching degree. Additionally, the department offers five master's degree programs and a Ph.D. in education with an emphasis on special education and disability policy.

Department of Teacher Education in Health and Physical Education

Offers a Bachelor of Science in Health, Physical Education and Exercise Science with eligibility for teacher licensure in P-12 health and physical education from the commonwealth of Virginia or 44 other states. The department also offers a Master of Science in Health and Movement Sciences.

Department of Teaching and Learning

Offers comprehensive programs of study in: early childhood/elementary education P-6, middle education 6-8, secondary education 6-12, curriculum and instruction, reading, and library media. The five-year extended program culminates in the awarding of both a bachelor's degree (B.A. or B.S.) in an undergraduate major and a master's degree in teaching (M.T.). Upon the successful completion of the program, students are eligible to apply for teacher certification from the commonwealth of Virginia and 44 other states. The department also offers a post-baccalaureate graduate certificate, a 30-credit program for those who wish to become teachers in secondary schools.

Department of Counselor Education

Offers graduate programs that prepare counselors with the specialized knowledge and skills required for placement in elementary, middle and high schools in the commonwealth of Virginia. The 42-semester hour program leads to the M.Ed. in Counselor Education and school counseling licensure in Virginia.

Department of Educational Leadership

Offers graduate programs in administration and supervision, adult education and human resource development. The department offers programs leading to the M.Ed., Post-master's Certificate and Ph.D. in Education Leadership. An optional M.Ed. is offered for those individuals who wish to engage in the study of leadership in educational settings but do not wish to seek positions as school administrators.

Degree programs

The School of Education offers undergraduate degree programs or extended programs leading to the following:

Bachelor of Science in Health, Physical Education and Exercise Science

- Applied health science
- Athletic training
- Clinical exercise science
- Community health education
- Teacher education in health and physical education P-12
- Concentrations
 - Pre-medicine
 - Pre-occupational therapy
 - Pre-physical therapy

Bachelor of Science in Recreation, Parks and Sport Management

- Recreation and park management
- Sport management
- Therapeutic recreation
- Concentrations
 - Pre-occupational therapy
 - Pre-physical therapy

Master of Teaching (extended programs)

- Early childhood/elementary education P-6
- Middle education 6-8
- Secondary education 6-12
 - English
 - Foreign languages
 - French
 - German
 - Spanish

History
 History and social studies
 Mathematics
 Sciences
 Biology
 Chemistry
 Interdisciplinary sciences
 Physics

Special education P-12

Dual endorsement in emotional disturbance and mental retardation, emotional disturbance and learning disabilities, or learning disabilities and mental retardation

Post-baccalaureate graduate certificates

Human resource development
 Library/media specialist
 Secondary education

Four-year programs

General degree requirements

A student enrolled in the Bachelor of Science in Health, Physical Education and Exercise Science must maintain a minimum cumulative GPA of 2.5 to be eligible to participate in clinical experiences, and must complete a minimum of 123 credits in teacher education in health and physical education and 126 credits in any of the majors in exercise science. The optional concentrations require additional course work.

A student enrolled in the Bachelor of Science in Recreation, Parks and Sport Management must maintain a minimum cumulative GPA of 2.0 and a major core GPA of 2.5 to be eligible to participate in clinical experiences, and must complete 120 credits.

The School of the Arts offers a Bachelor of Fine Arts in Art Education and a Bachelor of Music/Music Education degree. General requirements for those programs can be found in the "School of the Arts" chapter of this bulletin.

Faculty advisement

A degree-seeking student enrolled in one of the Bachelor of Science programs of study is assigned a general faculty adviser until the completion of 45 credit hours and attainment of the minimum cumulative GPA. Upon the achievement of these criteria, students are assigned a faculty adviser with specific expertise in the selected program of study: athletic training, applied health

science, clinical exercise science, community health education, teacher education in health and physical education, recreation and park management, sport management, or therapeutic recreation.

Although advisers will provide timely and accurate assistance, the student is ultimately responsible for satisfying degree requirements in a given academic program. Students in the School of Education are expected to obtain a student account through Academic Campus Computing so that they may access students and faculty through e-mail. This means of communication can enhance advising when student and faculty schedules are at variance.

Change of major and transfer students

A student with a minimum GPA of 2.0 can transfer to a four-year program in the School of Education from another school in the university. Change of Major/Minor forms are available from the Office of Records and Registration. Students must meet with the director of undergraduate advising for the Bachelor of Science degree programs before change of majors will be accepted. A transfer student with a minimum GPA of 2.0 also is eligible to become a degree-seeking student in a four-year program in the School of Education. Both change of major and transfer students pursuing a degree in teacher education in health and physical education must meet criteria for admission to teacher preparation. It must be noted that a minimum GPA of 2.5 is required for admission to clinical experiences.

Transcript evaluation

For the four-year programs leading to a Bachelor of Science degree, the department chairs and/or director of undergraduate advising evaluate prospective students' transcripts for change of major and transfer.

The School of the Arts evaluates its prospective students' portfolios and transcripts.

For each four-year program in teacher education, a student must present at least 30 semester hours of acceptable course work to be admitted to the Teacher Preparation Program.

Master of Teaching (extended programs)

General degree requirements

The School of Education, in cooperation with the College of Humanities and Sciences, offers extended teacher preparation programs. The successful completion of these programs results in the simultaneous awarding of both a bachelor's and a master's degree. Prospective Master of Teaching students earn their bachelor's degree in a specific field in which they plan to teach. A student generally begins work on the professional studies component in the third or fourth year of academic study.

A student enrolled in any one of the three extended teacher preparation programs must complete a minimum of 156 credits. The student must maintain a cumulative GPA of 2.5 for admission to the teacher preparation program, and upon completion of at least 90 credits, a minimum GPA of 3.0 in the last 60 semester hours of study is required for that student to be admitted to the graduate studies portion of the extended program.

A post-baccalaureate graduate certificate in secondary education is open primarily to those who have already earned a master's degree. The candidate must complete at least 24 additional hours beyond the bachelor's level. Admittance to this program requires a minimum GPA of 3.0 in the last 60 semester hours of study.

Faculty advisement

A student enrolled in an extended teacher preparation program is assigned a professional studies adviser in the School of Education and an adviser in the academic major within the College of Humanities and Sciences.

Although advisers will provide timely and accurate assistance, the student is ultimately responsible for satisfying degree requirements in a given academic program. Students in the School of Education are expected to obtain a student account through Academic Campus Computing so that they may access students and faculty through e-mail. This means of communication can enhance advising when student and faculty schedules are at variance.

Change of major and transfer students

Students wishing to enter the Extended Teacher Preparation Program must transfer initially to the College of Humanities and Sciences. They must declare a major in the college and a specialization in the appropriate professional studies sequence in the School of Education.

For admission to teacher preparation, a minimum GPA of 2.5 is required. A minimum GPA of 3.0 in the last 60 semester hours of study is required for admission to the graduate phase of the Extended Teacher Preparation Program.

Transcript evaluation

The College of Humanities and Sciences evaluates transcripts of all students pursuing the extended program. Credits are accepted if they conform with specific program guidelines; course equivalents from accredited colleges and universities are accepted if the grade earned is "C" or better. From the extended program, 60 semester hours of acceptable undergraduate course work are required to be admitted to a teacher preparation program. See specific criteria under the "Admission to the Extended Teacher Preparation Programs" heading in this section.

Credits that are accepted from two-year institutions may meet liberal arts and sciences requirements, but will not meet professional requirements for upper-division course work. The VCU Transfer Guide for Virginia Community Colleges lists, in full, credits accepted by VCU that have been earned in the state's community colleges.

After the initial student transcript evaluation, the assigned adviser reviews the accepted transfer credits with the student, determining what additional course work at VCU will be necessary. An adviser is not required to use all the accepted transfer credits in a student's program of study. Only those credits approved for transfer can be applied toward the chosen degree.

Teacher licensure

Upon completion of degree requirements in any of VCU's teacher preparation programs and with the recommendation of the School of Education, students are eligible to receive initial teacher licensure from the Virginia Department of Education. For

additional information on licensure, licensure renewal or an add-on endorsement, contact the School of Education's Office of Student Services.

In Virginia, initial licensure requires successful completion of the Praxis examinations. Students may meet the Praxis I assessment requirement by achieving passing scores on the reading, writing and mathematics tests or by achieving the established composite score for the three tests. Applicants for initial licensure must take the Praxis I examination and Praxis II specialty area test in the endorsement area in which licensure is sought. In fields where the specialty exam is not available, only the Praxis I test is required of licensure candidates. Praxis I should be taken prior to application for admission to Extended Teacher Preparation Program; the specialty examination should typically be taken in one's final semester.

Students should request that their Praxis I and Praxis II specialty area test scores be reported to VCU and the Virginia Department of Education.

Before a recommendation for licensure can be sent to the Teacher Licensure Division of the Virginia Department of Education, these test scores must be on file with the School of Education's Office of Student Services.

Approved programs and certification reciprocity

All of VCU's initial teacher preparation programs are approved by the Virginia Department of Education and accredited by the Southern Association of Colleges and Schools and the National Council for Accreditation of Teacher Education. VCU's School of Education also holds membership in the American and Virginia Associations of Colleges for Teacher Education and the Holmes Partnership.

Based on the National Association of State Directors of Teacher Education and Certification agreement, VCU graduates will be eligible for teacher licensure reciprocity with other states. Students interested in licensure reciprocity should contact the School of Education's Office of Student Services.

Resources

The School of Education has developed various resources to provide support services

to students, faculty and the academic programs. These resources are the Office of Student Services, the Office of Continuing Education and the Instructional Technology Center, which houses state-of-the-art computer laboratories.

Office of Student Services

Basic information on the degree programs in the School of Education, as well as forms needed by students as they advance through the programs, are available in the Office of Student Services, located on the third floor of Oliver Hall. Students enrolling in one of the B.S. degree programs can visit the satellite Office of Student Services, located on the second floor of Franklin Street Gym Complex.

The Office of Student Services in Oliver Hall receives and processes various School of Education application forms and supplies information on the Praxis I examination, Praxis II specialty area tests, Graduate Record Examination and the Miller Analogies Test. For information on student performance on the Praxis examinations, refer to the School of Education Web site at <http://www.soe.vcu.edu/links>.

This office coordinates clinical placements for students in practica, student teaching, internships and externships. Student teachers and graduate intern teachers are placed primarily in school divisions and other educational facilities in the greater Richmond metropolitan area. Students in non-teacher education programs are placed in practica and clinical experiences through the satellite Office of Student Services in Franklin Street Gym Complex. Placements are secured in schools, agencies, clinics and hospitals in the greater Richmond metropolitan area. Every effort is made to place students in clinical experiences relevant to their intended career path.

Scholarship applications and information available to School of Education students can be obtained at either location of the Office of Student Services. Information on financial aid administered by the university is found in the "Expenses and Financial Aid" chapter of this bulletin.

Licensure and endorsement information, materials and applications for Virginia education personnel are available in the Office of Student Services. Licensure and endorsement are based, in part, on the successful

completion of an approved program that complies with national standards.

Instructional Technology Center

The Instructional Technology Center, a multimedia facility, is used by faculty and students in the School of Education. The center houses microcomputers with sophisticated graphics capabilities, educational software and many similar resources for the development of instructional materials. It also provides access to the School of Education's Local Area Network, VCU Libraries, the Internet and the Web.

Computer laboratories

The Instructional Laboratory, housed in the Instructional Technology Center, gives students many opportunities to learn about computer-assisted instruction in the classroom setting. It also lends support to students enrolled in the computer science basic literacy course and other technology courses offered by the school. The laboratory equipment includes Macintosh and IBM-compatible multimedia computers. Laptop computers, laser printers, color laser printers and scanners also are available.

The INFUSIO Distance Learning Technology Laboratory, also housed in the Instructional Technology Center, is a new technology facility designed to provide assistance to faculty, preservice teachers and associates in the School of Education. The lab presently houses a Polycom two-way video conferencing system, interactive Smart and Softboards, and Mimeo digital meeting assistant technology for electronic note taking. There are several high-end multimedia PC stations and a Macintosh computer with a variety of the latest software programs. Computers are equipped with headphones, microphones and digital cams for use in audio and video recording. The INFUSIO Lab includes a number of assistive technologies designed to enhance the concept of universal learning.

A university computer laboratory open to all students is housed in Oliver Hall. The laboratory is equipped with 24 IBM- and Mac-compatible computers that permit students to access the Internet and MS Office software.

Department of Exercise Science

Jack Schiltz

Professor and Department Chair (1969)
B.S. Southern Illinois University
M.S. Southern Illinois University
Ed.D. 1968 Columbia University

The Department of Exercise Science offers programs that prepare students to pursue careers in athletic training/sports medicine, community health and/or careers that employ exercise interventions for both healthy and diseased populations. The department offers one undergraduate degree program: Bachelor of Science in Health, Physical Education and Exercise Science. There are three concentrations within the B.S. in Health, Physical Education and Exercise Science: applied health science, clinical exercise science and community health education. Optional concentrations in pre-physical therapy, pre-occupational therapy and pre-medicine also are available. The department offers a major in athletic training.

Faculty adviser

Students admitted to one of the major programs in the department of exercise science will be advised by the director of undergraduate advising until a minimum of 45 hours are completed. Students with accumulated hours beyond 45 will be assigned an adviser in the student's declared program choice. Although advisers will provide timely and accurate assistance, the student is responsible for satisfying degree requirements.

Computer account

All students are expected to obtain a personal computer account and an e-mail address through University Computing Services that will enable them to communicate through electronic mail with their advisers and course instructors.

Applications for computer accounts and e-mail addresses can be submitted at the Customer Service window located in Cabell Library, Room B-9 or via the Web at <http://www.vcu.edu/vcsac/accounts.html>.

Bachelor of Science in Health, Physical Education and Exercise Science

Athletic training major

Students who are interested in pursuing the B.S. in Health, Physical Education and Exercise Science/Athletic Training major of study must complete an application to the Athletic Training Education Program in addition to the application for admission to the university.

Application process. Application forms for the athletic training major are available at http://www.soe.vcu.edu/depts/es/ath_train.htm.

Applications should be sent to the Athletic Training Program Director, P.O. Box 842037, Richmond, VA 23284-2037.

The following also should be forwarded to the athletic training program director:

- a letter to the director stating the reasons for wanting to pursue a major in athletic training.
- an official copy of all transcripts; a minimum cumulative GPA of 2.5 is required.
- three letters of recommendation.
- proof of valid First Aid and CPR certifications.
- evidence of immunization for Hepatitis B.
- proof of health examination from physician which verifies that the student can safely meet the physical and technical skills required by a student athletic trainer.
- successful completion of BIOL 205 and BIOZ 205L.
- successful completion of PHIS 206 and PHIZ 206L.

In addition, an interview with the athletic training major admissions committee may be required. If an interview is required, interviews will be scheduled through the Department of Exercise Science administrative office, (804) 828-1948.

The selection of students for the athletic training major is competitive, but is open until all available positions in each class are filled.

GPA. Students admitted to the athletic training major must maintain a 2.5 GPA in their program of study.

Certification. Students who successfully complete the athletic training major are required to pass an entry-level examination administered by the National Athletic Trainers' Association Board of Certification (NATABOC) to become a certified athletic trainer. All applicants for NATABOC certification must be graduates of an accredited program by the year 2004. The commonwealth of Virginia, since 2002, requires state certification to serve as an athletic trainer.

The athletic training major is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

Program of study: athletic training

A 2.5 cumulative GPA is required for entry into the B.S. in health, physical education and exercise science/athletic training major and clinical experiences.

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
PSYC 101 Introduction to Psychology	4
Social sciences elective	3
Humanities or social sciences elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 210 Basic Practice of Statistics	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
Visual and performing arts elective(s)	2
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	37

Allied professional core

BIOL 205 and BIOZ 205L Human Anatomy	4
BIOL/PHIS 206 and BIOZ/PHIZ 206L Human Physiology	4
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	8

General electives

	8
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HPEX required core

HPEX 200 Strength, Endurance and Flexibility Training	3
HPEX 271 Safety, First Aid and CPR	3
HPEX 350 Nutrition	3
HPEX 352 Substance Abuse	3
HPEX 353 Trends in Modern Disease	3
HPEX 354 Coping and Adaptation	3
HPEX 355 School and Community Health Resources	3
HPEX 371 Psychology of Physical Activity	3
HPEX 373 Structural Kinesiology	3

HPEX 375 Physiology of Exercise	3
HPEZ 375L Physiology of Exercise Laboratory	1
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	31

Professional core

HPEX 220/HPEZ 220L Introduction to Athletic Training and Laboratory	4
HPEX 320/HPEZ 320L Upper Extremity Assessment and Laboratory	4
HPEX 321/HPEZ 321L Lower Extremity Assessment and Laboratory	4
HPEX 322/HPEZ 322L Therapeutic Exercise and Laboratory	4
HPEX 324/HPEZ 324L Therapeutic Modalities and Laboratory	4
HPEX 325 Pathology and Pharmacology in Athletic Training	3
HPEX 420 Athletic Training Administration	3
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	26

Clinical experiences

HPEX 395 Clinical Experience I	4
HPEX 396 Clinical Experience II	4
HPEX 495 Clinical Experience III	4
HPEX 496 Clinical Experience IV	4
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	16

Total credits

126

Optional concentrations in athletic training

Pre-physical therapy option

For athletic training students interested in pursuing graduate study in physical therapy, the following courses should be taken in addition to the courses specified in the above program of study:

General education	credits
PSYC 304 Life Span Developmental Psychology	3
MATH 151 or higher	4
PHIL 213 Ethics in Health Care	3

PPT professional core

BIOL 102 Science of Heredity or BIOZ 152 Introduction to Biological Science II	3
BIOZ 102L Science of Heredity Laboratory or BIOZ 152L Introduction to Biological Science Laboratory II	1
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
CHEM 102 General Chemistry	3
CHEZ/FRSZ 102L General Chemistry Laboratory	1
PHYS 201 General Physics	4
PHYZ 201L General Physics Laboratory	0
PHYS 202 General Physics	4
PHYZ 202L General Physics Laboratory	0
PSYC 407 Psychology of the Abnormal	3

In addition students are encouraged to complete BIOL 218 Cell Biology and BIOL 308 Vertebrate Histology

Total credits

145

Pre-medicine option

For athletic training students who are interested in pre-medicine, the following courses should be taken in addition to the requirements listed in the athletic training program of study:

General education	credits
MATH 151 or higher** (replaces MATH 131)	4
BIOL 151 Introduction to Biological Science I** (replaces BIOL 101)	3
BIOZ 151L Introduction to Biological Science I** Laboratory (replaces BIOZ 101L)	1

Pre-medicine core

BIOL 152 Introduction to Biological Science II**	3
BIOZ 152L Introduction to Biological Science Laboratory II**	1
MATH 151 Pre-calculus**	4
CHEM 101 General Chemistry**	3
CHEZ/FRSZ 101L General Chemistry Laboratory**	1
CHEM 102 General Chemistry**	3
CHEZ/FRSZ 102L General Chemistry Laboratory**	1
CHEM 301 Organic Chemistry**	3
CHEZ 301L Organic Chemistry Laboratory**	1
CHEM 302 Organic Chemistry**	3
CHEZ 302L Organic Chemistry Laboratory**	2
Physics – one of the following groups:**	8
PHYS 201 Physics	4
PHYZ 201L Physics Laboratory	0
PHYS 202 Physics	4
PHYZ 202L Physics Laboratory	0

Other recommended pre-medical courses

BIOL 218 Cell Biology	3
BIOL 308 Vertebrate Histology	3
BIOL 311 Animal Physiology (Prerequisite: BIOL 218)	3
CHEM 403 Biochemistry (Prerequisites: CHEM 301 and 302)	3

** These courses must be completed prior to taking the MCAT exam.

Applied health science concentration

Applied health science prepares students to serve as administrative leaders of health, fitness and conditioning programs in the corporate, commercial or university setting in which apparently healthy individuals and those with controlled disease participate in health promotion, fitness and conditioning activities. Career paths include corporate fitness director, strength and conditioning

specialist, wellness director, and exercise physiologist. A 2.5 cumulative GPA is required for entry into practicum and clinical experiences.

Program of study: applied health science

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
Psychology 101	4
Social sciences elective	3
Psychology elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 210 Basic Principles of Statistics	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
Visual and performing arts elective(s)	2
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	37

General electives

Select electives with adviser	3
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Allied professional core

BIOL 205, BIOZ 205L Human Anatomy and Laboratory	4
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	4
CHEM 110 and CHEZ 110L Chemistry and Society and Laboratory	4
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	12

HPEX required core

HPEX 200 Strength, Endurance and Flexibility Training	3
HPEX 240 Introduction to Health Professions	3
HPEX 334 Measurement and Analysis in Teaching and Exercise Science	3
HPEX 350 Nutrition	3
HPEX 375 Physiology of Exercise	3
HPEX 375L Physiology of Exercise Laboratory	1
HPEX 440 Chronic Disease and Exercise Management	3
HPEX 445 Organization and Administration of Health Professions	3
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	22

Applied health science core

HPEX 332 Motor Learning and Performance	3
HPEX 353 Trends in Modern Diseases	3
HPEX 371 Psychology of Physical Activity	3
HPEX 373 Structural Kinesiology	3
HPEX 375 Biomechanics	3
HPEX 441 Assessment and Exercise Intervention in Health and Disease	3
HPEX 470 Exercise Programming and Leadership	3
PSYC 412 Health Psychology	3
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	24

Applied health science selectives 13

Select 13 credits from the following courses:	
HPEX 250 Medical Terminology	1
HPEX 271 Safety, First Aid and CPR	3
HPEX 345 Coping and Adaptation	3
PSYC 304 Life Span Developmental Psychology	3
PSYC 401 Physiological Psychology	3
HEMS 505 Contemporary Issues in Health	3
HEMS 521 Pathomechanics of Sports Injuries	3
HEMS 550 Exercise, Nutrition and Weight Management	3
SOCY 445 Medical Sociology	3
(selective or cognate with adviser's approval)	

Clinical experiences

HPEX 393 Field Practicum III	3
HPEX 495 Clinical Experience III	6
HPEX 496 Clinical Experience IV	6
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	15

Total credits 126

Optional concentrations in applied health science

Pre-occupational therapy option

For applied health science students interested in pursuing graduate study in occupational therapy, no additional course work is required. All prerequisite courses for occupational therapy are included in the applied health science curriculum. The VCU Master of Science in Occupational Therapy is designed for persons who have at least 90 credits toward a bachelor's degree, or an undergraduate degree. Students should consult with their adviser if they plan to complete this program option.

Pre-physical therapy option

For applied health science students interested in pursuing graduate study in physical therapy, the following courses should be taken in addition to the courses specified in the above program of study:

General education	credits
PSYC 304 Life Span Developmental Psychology	3
PSYC 407 Psychology of the Abnormal	3
MATH 151 or higher	4

Applied health science selectives

Physical therapy cognate	
BIOL 102 Science of Heredity or BIOL 152 Introduction to Biological Science II	3
BIOZ 102L Science of Heredity Laboratory or BIOZ 152L Introduction to Biological Science Laboratory II	1
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
CHEM 102 General Chemistry	3
CHEZ/FRSZ 102L General Chemistry Laboratory	1
PHYS 201 General Physics	4
PHYZ 201L General Physics Laboratory	0
PHYS 202 General Physics and Laboratory	4

Applied health science core

PHIL 213 Ethics in Health Care substituted for PSYC 412
 In addition, students are encouraged to complete BIOL 218 Cell Biology and BIOL 308 Vertebrate Histology

Total credits 130

Community health education concentration

The community health education curriculum prepares students for health-related careers in private, public, medical and corporate sectors. Students in this program track are prepared to assist in the development of healthy communities through the implementation of dynamic and ongoing health education/health promotion programs across the life span. Career opportunities include community health educator, public health specialist, health promotion specialist and health related research. A 2.5 cumulative GPA is required for entry into practicum and clinical experiences.

Program of study: community health education

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
PSYC 101 Introduction to Psychology	4
Psychology elective	3
Social sciences elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 210 Basic Practice of Statistics	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
Visual and performing arts elective(s)	2
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	37

Electives

Select electives with adviser	3
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	3

Allied professional core

BIOL 205/BIOZ 205L Human Anatomy and Laboratory	4
BIOL/PHIS 206, BIOZ/PHIZ 206L Human Physiology and Laboratory	4
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	8

HPEX required core

HPEX 200 Strength, Endurance and Flexibility Training	3
HPEX 240 Introduction to Health Professions	3

School of Education

HPEX 334 Measurement and Analysis in Teaching and Exercise Science	3
HPEX 350 Nutrition	3
HPEX 375/HPEZ 375L Physiology of Exercise and Laboratory	4
HPEX 440 Chronic Disease and Exercise Management	3
HPEX 445 Organization and Administration of Health Professions	3
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	22

Community health education core

HPEX 250 Medical Terminology	1
HPEX 291 Professional Conference	1
HPEX 353 Trends in Modern Diseases	3
HPEX 355 School and Community Health Resources	3
HPEX 356 Community Health Education: Theory and Practice	3
HPEX 450 Program Planning and Evaluation	3
PSYC 412 Health Psychology	3
SOCY 445 Medical Sociology	3
PHIL 213 Ethics in Health Care	3
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	23

Community health education selectives

Select 18 hours within the following courses:	
HPEX 270 Personal Health	3
HPEX 271 Safety, First Aid and CPR	3
HPEX 351 Issues in Sexuality	3
HPEX 352 Substance Abuse	3
HPEX 354 Coping and Adaptation	3
HPEX 371 Psychology of Physical Activity	3
HPEX 431 Adapted Physical Activity	3
HPEX 441 Assessment and Exercise Intervention in Health and Disease (Selective or cognate with adviser's approval)	3
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	18

Clinical experiences

HPEX 393 Field Practicum III	3
HPEX 495 Clinical Experience III	6
HPEX 496 Clinical Experience IV	6
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	15

Total credits 126

Clinical exercise science concentration

The clinical exercise science curriculum prepares students to serve as allied health professionals who will provide services in the application of exercise and physical activity for those clinical and pathological situations where it has been shown to provide therapeutic or functional benefit. Career paths include kinesiotherapy, cardiopulmonary rehabilitation, industrial rehabilitation and clinical exercise physiology. With minor adjustments, this program of study is excel-

lent preparation for graduate study in physical therapy and clinical exercise physiology.

Program of study: clinical exercise science

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
PSYC 101 Introduction to Psychology	4
PSYC 304 Life Span Developmental Psychology	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 210 Basic Practice of Statistics	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
Visual and performing arts elective	2
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	34
General electives	
Select electives with adviser	3
	<hr/>
	3

Allied professional core

BIOL 205, BIOZ 205L Human Anatomy and Laboratory	4
PHIS 206, PHIZ 206L Human Physiology and Laboratory	4
CHEM 110, CHEZ 110L Chemistry and Society and Laboratory	4
PHYS 101/PHYZ 101L Foundations of Physics or PHYS 107 Wonders of Technology	4
PSYC 401 Physiological Psychology	3
PSYC 407 Psychology of the Abnormal	3
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	22

HPEX required core

HPEX 200 Strength, Endurance and Flexibility Training	3
HPEX 240 Introduction to Health Professions	3
HPEX 334 Measurement and Analysis in Teaching and Exercise Science	3
HPEX 350 Nutrition	3
HPEX 375/HPEZ 375L Physiology of Exercise and Laboratory	4
HPEX 440 Chronic Disease and Exercise Management	3
HPEX 445 Organization and Administration of Health Professions	3
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	22

Clinical exercise science core

HPEX 270 Introduction to Personal Health Assessment and Laboratory	3
HPEX 320/HPEZ 320L Upper Extremity Assessment and Laboratory	4
HPEX 321/HPEZ 321L Lower Extremity Assessment and Laboratory	4
HPEX 322/HPEZ 322L Therapeutic Exercise in AT and Laboratory	4
HPEX 332 Motor Learning and Performance	3

HPEX 373 Structural Kinesiology	3
HPEX 374 Biomechanics	3
HPEX 431 Adapted Physical Activity	3
HPEX 441 Assessment and Exercise Intervention in Health and Disease	3

Clinical experiences

HPEX 393 Field Practicum III	3
HPEX 495 Clinical Experience III	6
HPEX 496 Clinical Experience IV	6
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	15

Total credits 126

Optional concentrations for clinical exercise science

Pre-physical therapy option

For clinical exercise science students who are interested in pursuing graduate study in physical therapy, there are additional course requirements. The pre-physical therapy focus requires 142 credit hours and these must include the following courses in addition to requirements specified in the clinical exercise science program of study:

General education	credits
Students may substitute BIOL 151 and BIOZ 151L for BIOL 101 and BIOZ 101L	4
MATH 151 or higher	4
PPT professional core	
BIOL 102/BIOZ 102L or BIOL 152/BIOZ 152L	4
CHEM 101, CHEZ/FRSZ 101L General Chemistry I (replaces CHEM 110/CHEZ 110L)	4
CHEM 102, CHEZ/FRSZ 102L General Chemistry II	4
PHYS 201/PHYZ 201L General Physics (replaces PHYS 101/PHYZ 101L or 107)	4
PHYS 202/PHYZ 202L General Physics	4
PHIL 213 Ethics in Health Care	3

In addition, students are encouraged to complete BIOL 218 Cell Biology and BIOL 308 Vertebrate Histology

Total credits 142

Master of Science in Health and Movement Sciences

The M.S. in Health and Movement Sciences provides advanced course work for students interested in the application of health and movement science principles to exercise science, health and sports medicine. The 36-credit-hour degree program offers a thesis and non-thesis option. See the Graduate and Professional Programs Bulletin for a more detailed description of this program.

Department of Teacher Education in Health and Physical Education

Robert G. Davis

Professor and Department Chair (1973)
 B.S. West Chester State College
 M.Ed. Pennsylvania State University
 Ph.D. 1973 University of Maryland

The Department of Teacher Education in Health and Physical Education is the only School of Education unit that offers a four-year undergraduate teaching degree. Students completing the degree will be certified to teach health and physical education at the elementary, middle and high school levels, and are eligible for teacher licensure in Virginia as well as 44 other states. During their four years, students receive extensive experience interacting with students in both urban and suburban schools.

The teacher education program in health and physical education emphasizes the development of reflective thinking and problem solving skills. Students develop into reflective practitioners through a combination of theoretical course work and early and sequential field experiences.

Students wishing to pursue the teacher education program in health and physical education should follow the outlined series of steps to meet program expectations.

Teacher Education Program

Step 1: Admission to Teacher Education Preparation Program

Students should apply for admission during the semester of their 45th credit hour and meet the following requirements.

Procedures

- complete Admission to Teacher Education form (obtain from Office of Student Services)
- request VCU transcript (obtain from Office of Records and Registration)
- return completed form with VCU transcript to Office of Student Services

Requirements

- 2.5 GPA or better
- successful completion of
 - six hours of English
 - four hours of laboratory science
 - three hours of math
 - six hours of social science
- students in teacher education must obtain passing scores on the Praxis Examination I: PPST Subtests or obtain the established composite score for the three tests (obtain information from the Office of Student Services in Oliver Hall, 1015 W. Main St., Room 2087)

Note: Students not admitted will be informed and asked to consult with their adviser for counseling. Students must be admitted to teacher preparation in order to be eligible for practicum placement.

Step 2: Admission to practicum experience

Students must meet the following requirements to enroll in HPEX 393.

Requirements

- 2.5 GPA or better
- admission to professional preparation or teacher preparation

Step 3: Admission to student teaching placement

Deadline for application is early in the preceding spring/fall semester prior to enrolling in placement. Check with the Office of Student Services for deadline dates.

Procedures

- complete application for Student Teaching Form (obtain from Office of Student Services)
- request VCU transcript (obtain from Office of Records and Registration; allow two weeks)
- review completed application with adviser and obtain adviser's signature
- submit completed application packet (to supervisor of student teaching within the department)

Requirements

- 2.5 overall GPA and 2.5 GPA in professional course work
- prior admission to professional preparation or completion of HPEX 393 with a grade of "C" or better
- successful completion of all professional course work prior to placement

Program of study: teacher education

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
Social sciences elective	3
Humanities elective	3
Humanities or social sciences elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
Visual and performing arts elective (HPEX 211, HPEX 214)	0
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	31

Allied professional core

BIOL 205/BIOZ 205L Human Anatomy and Laboratory	4
PHIS 206/PHIZ 206L Human Physiology and Laboratory	4
EDUS 300 Foundations of Education	3

EDUS 301 Human Development and Learning	3
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	14

HPEX core

HPEX 230 History and Philosophy of Health and Physical Education	3
HPEX 330 Movement Education	3
HPEX 332 Motor Learning and Performance	3
HPEX 333 Psychosocial Aspects of Sport and Physical Activity	3
HPEX 334 Measurement and Analysis in Teaching Exercise Science	3
HPEX 335 Elementary Physical Education for Physical Education Majors	3
HPEX 350 Nutrition	3
HPEX 352 Substance Abuse	3
HPEX 353 Trends in Modern Diseases	3
HPEX 355 School and Community Health Resources	3
HPEX 354 Coping and Adaptation or HPEX 351 Issues in Sexuality	3
HPEX 373 Structural Kinesiology or HPEX 374 Biomechanics	3
HPEX 375/HPEZ 375L Physiology of Exercise and Laboratory	4
HPEX 431 Adapted Physical Activity	3
HPEX 432 Methods and Curriculum in Physical Education	3
HPEX 433 Methods and Curriculum in Health Education	3
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	49

Professional activity core

HPEX 200 Endurance, Strength and Flexibility Training	3
HPEX 201 Individual Sports and Lifelong Leisure Activities	3
HPEX 202 Team Sports	3
HPEX 211 Tumbling and Elementary Rhythmics	1
HPEX 214 Social Rhythmics	1
RPSM 300 Wilderness Education	1
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	12

Clinical experiences

HPEX 291 Topical Seminar: Professional Conference	1
HPEX 393 Field Practicum I	3
HPEX 493 Field Experience III	6
HPEX 494 Field Experience IV	6
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	16

Additional requirements

Praxis I (Reading, Writing, Mathematics)
 Praxis II: Specialty Area (Health and PE K-12)
 Application to Professional Preparation (2.5 GPA required)
 Application to Student Teaching (2.5 GPA required) (see division for deadlines)
 Current first aid and CPR certifications required to enroll in HPEX 393, 493 and 494

Successful completion of the computer literacy examination required for entry into clinical experiences.

Note: A 2.0 cumulative GPA is required for entry into the health and physical education/teacher education track and a cumulative 2.5 GPA and successful completion of Praxis I is required for field experiences.

Total credits 123

Master of Science in Health and Movement Sciences

The department, in conjunction with the Department of Exercise Science, also offers an M.S. in Health and Movement Sciences. This 36-credit degree is open to those with a physical education undergraduate degree as well as others who may wish to further their education in health-related sciences. It may be necessary for those outside the physical education field to take additional undergraduate courses in order to complete the degree. This master's degree does not lead toward licensure in teacher education.

Department of Recreation, Parks and Sport Management

Michael S. Wise

Associate Professor and Department Chair (1972)
 B.S. North Carolina State University
 M.S. Indiana University
 Ed.D. 1972 University of Georgia

The programs in recreation, parks and sport management prepare individuals for exciting professional careers in various recreation and sport settings. Employment opportunities are found in hospital and other health care settings, community-based therapeutic recreation programs, public park and recreation agencies, commercial recreation businesses, sport complexes, campus and military operations, and nonprofit agencies.

Three programs of study are currently available in recreation, parks and sport management. The curriculum is recognized as an accredited professional program by the Council of Accreditation of the National Recreation and Park Association/American Association for Leisure and Recreation. The importance of supervised field placement is recognized as part of professional development. Class practica and projects and a minimum 400-hour internship create opportunities to transform classroom knowledge into program service delivery.

Courses in the various programs of study denoted with an asterisk (*) require a minimum cumulative GPA of 2.0 and a 2.0 GPA in the major to enroll in the class. A minimum 2.5 GPA in the recreation, parks and sport management core and professional core is required to enroll in the RPSM 493 Internship in all programs.

Recreation and park management concentration

The recreation and park management curriculum prepares students for leadership and mid-management positions in a variety of settings that provide recreation opportunities. Students will gain competence in leadership skills, program planning, park operations and agency administration.

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Writing intensive elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 208 Statistical Thinking or equivalent	3
Natural/physical science with laboratory	4
Social science elective	3
Social science elective	3
American studies elective	3
Global studies elective	3
Oral communication elective	3
Visual and performing arts elective(s)	2
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	36

Recreation, parks and sport management core	credits
RPSM 195 Recreation Leadership	3
RPSM 261 Recreation, Parks and Sport Management in Modern Society	3
RPSM 303 Leisure Delivery Systems	3
RPSM 320 Recreation Analysis*	3
RPSM 395 Recreation Program Development*	3
RPSM 403 Recreation, Parks and Sport Management Administration*	3
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	18

Professional core	credits
RPSM 331 Facility/Site Selection/Analysis	3
RPSM 332 Facility/Site Design/Development	3
RPSM 404 Revenue Sources in Recreation, Parks and Sport Management*	3
RPSM 465 Park Operations/Maintenance	3
RPSM 490 Seminar*	3
RPSM 493 Internship+	8
HPEX Electives	6
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	29

Open electives 13-19

Concentration or minor 18-24
 With approval of adviser, students can select an 18-hour concentration of upper-division course work or one of the following minors:

Criminal justice	18
Social welfare	18
Urban studies	18
General business	21
Environmental studies	24

Total credits 120

* A minimum 2.0 cumulative GPA and a 2.0 major GPA are required to be eligible to enroll in this course.

+ A minimum 2.5 GPA in recreation, parks and sport management core and professional core is required to be eligible to enroll in this course.

Sport management concentration

The sport management curriculum prepares students for career positions associated with creating and implementing quality sports programs. Students complete a core curriculum in recreation and parks blended with concentrations from business and mass communications. The option is designed for the management and marketing of sport facilities and services.

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Writing intensive elective	3
Oral communication elective	3
American studies elective	3
Global studies elective	3
Social sciences elective	3
Social sciences elective	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 208 Statistical Thinking or equivalent	3
Natural science elective with laboratory	4
Visual and performing arts elective(s)	2
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	36

Recreation, parks and sport management core	credits
RPSM 195 Recreation Leadership	3
RPSM 261 RPSM in Modern Society	3
RPSM 303 Leisure Delivery Systems	3
RPSM 320 Recreation Analysis*	3
RPSM 395 Recreation Program Development*	3
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	15

Sport management core	credits
RPSM 340 Introduction to Sport Management (prerequisite: MASC 101)	3
RPSM 440 Administration of Sport Facilities* (prerequisite: RPSM 340)	3
RPSM 441 Law and Sport (Prerequisite: RPSM 340)*	3

RPSM 371 Psychology of Physical Activity or HPEX 333 Psychosocial Aspects of Sport and Physical Activity	3
RPSM 490 Seminar*	3
RPSM 493 Internship ⁺	8
	<hr/>
	23
Business core	
ECON 203 Introduction to Economics	3
ACCT 202 Accounting for Non-business Majors	3
MRBL 308 Introduction to Marketing (JR)	3
MRBL 323 Legal Environment of Business (JR)	3
FIRE 333 Risk and Insurance	3
MGMT 331 Personnel Management (JR)	3
MGMT 421 Introduction to Entrepreneurship	3
	<hr/>
	21
Mass communications core	
MASC 101 Mass Communications (FR)	3
MASC 151 Communications Technology and Global Studies	3
Select two of the following three:	6
MASC 323 Public Relations (3)	
MASC 361 Principles of Broadcasting (3)	
MASC 380 Introduction to Advertising (3)	
	<hr/>
	12
General electives	13
Total credits	120

* A minimum 2.0 cumulative GPA and a 2.0 major GPA are required to be eligible to enroll in this course.

⁺ A minimum 2.5 GPA in recreation, parks and tourism core and professional core is required to be eligible to enroll in this course.

Therapeutic recreation major

The therapeutic recreation option prepares future practitioners for employment in community, clinical and residential settings that provide leisure services and therapeutic interventions to persons with disabilities. The curriculum meets the standards prepared by the National Council for Therapeutic Recreation Certification. Graduates are qualified to sit for the Certified Therapeutic Recreation Specialist exam. Career opportunities in rehabilitation, psychiatric, child life, assisted living and community recreation settings exist.

With slight modifications, the therapeutic recreation option meets the curriculum requirements for those students who wish to pursue graduate studies in either physical or occupational therapy.

General education	credits
ENGL 101 Writing and Rhetoric Workshop I	3
ENGL 200 Writing and Rhetoric Workshop II	3
Writing intensive requirement	3
MATH 131 Introduction to Contemporary Mathematics or equivalent	3
STAT 208 Statistical Thinking or equivalent	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
PSYC 101 Introduction to Psychology	4
Social sciences elective	3
American studies elective	3
Global studies elective	3
Oral communication elective	3
Visual and performing arts elective(s)	2
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	37
Allied professional core	
BIOL 205/BIOZ 205L Human Anatomy and Laboratory	4
PHIS/BIOL 206 and PHIZ/BIOZ 206L Human Physiology and Laboratory	4
PSYC 304 Life Span Developmental Psychology	3
PSYC 407 Psychology of the Abnormal	3
	<hr/>
	14
Recreation, parks and sport management core	
RPSM 195 Recreation Leadership	3
RPSM 261 Recreation, Parks and Sport Management in Modern Society	3
RPSM 303 Leisure Delivery Systems	3
RPSM 320 Recreation Analysis*	3
RPSM 395 Recreation Program Development*	3
RPSM 403 Recreation, Parks and Sport Management Administration*	3
	<hr/>
	18
Therapeutic recreation	
RPSM 371 Introduction to Therapeutic Recreation	3
RPSZ 371L Introduction to Therapeutic Recreation Laboratory	1
RPSM 471 Clinical Assessment*	3
RPSM 472 Therapeutic Recreation Program Development*	3
RPSM 493 Internship ⁺	8
RPSM 506 Contemporary Issues*	3
	<hr/>
	21
Electives	12
Concentration or minor	18
With approval of adviser, students can select an 18-hour concentration of upper-division course work or one of the following minors:	
Criminal justice	18
Psychology	18
Social welfare	18
	<hr/>
Total credits	120

* A minimum 2.0 cumulative GPA and a 2.0 major GPA are required to be eligible to enroll in this course.

⁺ A minimum 2.5 GPA in recreation, parks and sport management core and professional core is required to be eligible to enroll in this course.

Optional concentrations in therapeutic recreation

Pre-occupational therapy option

For therapeutic recreation students interested in pursuing graduate study in occupational therapy, the following courses should be taken.

General education

STAT 210 Basic Practice of Statistics (replaces STAT 208)

Allied professional core

Psychology or sociology elective

Total credits

120

The VCU Master of Science in Occupational Therapy is designed for persons who have at least 90 credits toward a bachelor's degree, or an undergraduate degree. Students should consult with their adviser if they plan to complete this track.

Pre-physical therapy option

For therapeutic recreation students interested in pursuing graduate study in physical therapy, the following courses should be taken in addition to the courses specified in the therapeutic recreation track.

General education

MATH 151 Pre-calculus Mathematics or higher (replaces MATH 131)

STAT 210 Basic Practice of Statistics (replaces STAT 208)

Allied professional core

BIOL 102/BIOZ 102L Science of Heredity
 PHYS 201/PHYZ 201L General Physics I
 PHYS 202/PHYZ 202L General Physics II
 CHEM 101/CHEZ/FRSZ 101L General Chemistry and Laboratory I
 CHEM 102/CHEZ/FRSZ 102L General Chemistry and Laboratory II
 PHIL 213 Ethics and Health Care
 In addition, students are encouraged to complete BIOL 218 Cell Biology and BIOL 308 Vertebrate Histology.

Total credits

135

Students should inform their adviser if they plan to complete this track.

Minor in recreation, parks and sport management

RPSM 195 Recreation Leadership	3
RPSM 261 Recreation, Parks and Sport Management in Modern Society	3
RPSM 303 Leisure Delivery Systems	3
RPSM 395 Recreation Program Development*	3
Recreation electives selected in consultation with the recreation program head	6
	18

* At least a 2.0 cumulative GPA and a 2.0 major GPA is required in order to be eligible to take this course.

Master of Science in Recreation, Parks and Sport Leadership

The department also offers a Master of Science program in leisure services management, therapeutic recreation or sport leadership. The sport leadership track is administered through the VCU SportsCenter Program and requires a special application. Applications can be accessed through the VCU Web site at <http://www.vcu.edu/sportscenter>.

Program changes

All programs are evaluated on a continual basis to ensure that the curriculum meets university guidelines and the standards of the departments and the various accrediting agencies. In order to maintain the highest standards, curriculum revisions are often necessary. Students should check with their adviser to obtain a copy of the current program requirements.

Department of Teaching and Learning

Leila Christenbury

Professor and Chair (1986)
 B.A. Hollins College
 M.A. University of Virginia
 Ed.D. 1980 Virginia Polytechnic Institute and State University

The Department of Teaching and Learning is committed to excelling in the initial and continuing preparation of P-12 teachers for the commonwealth; to working with diverse populations; to modeling and encouraging critical reflection on practice; to collaborating and forming partnerships with colleagues in educational agencies; to

applying research and conducting scholarly endeavors that examine learning and teaching processes; to embracing technology as a tool for instruction; and to providing assistance and service to school divisions and agencies.

Using as its foundation the concept of the teacher as reflective practitioner, the Department of Teaching and Learning both imparts knowledge and skills and asks that students question and inquire regarding pedagogy, curriculum, child and adolescent development, and the school in society.

Extended teacher preparation programs

The School of Education, in cooperation with the College of Humanities and Sciences, offers extended teacher preparation programs in early childhood/elementary education (pre-kindergarten through grade six); middle education (grades six through eight); and secondary education (grades six through 12). The successful completion of these programs results in the simultaneous awarding of both a bachelor's and a master's degree. The program requires 156 credits, at least 33 of which must be at the graduate level.

Prospective secondary school teachers earn their bachelor's degree in a specific field in which they plan to teach — English, foreign language, science, mathematics or history.

Similarly, prospective middle school teachers most often specialize in English, history, mathematics, science or social science. For students planning to become early childhood/elementary teachers, any major in the humanities or the sciences is acceptable.

In the extended program, a student generally begins work on the professional studies component in the third year of study.

Information on specific requirements for all academic majors is available in the Department of Teaching and Learning, in the College of Humanities and Sciences' associate dean's office or through the department of the chosen major. Students may visit <http://www.soe.vcu.edu/depts/tl> for information about programs in the Department of Teaching and Learning. A student in the extended program must maintain a minimum cumulative GPA of 2.5 for admission to teacher preparation and clinical experience, and prior to the fifth year a

minimum GPA of 3.0 for admission to the graduate study portion of the program.

Admission to the Extended Teacher Preparation Program

Any undergraduate admitted to VCU who declares a major in the College of Humanities and Sciences is eligible to declare a specialization in early childhood/elementary, middle or secondary education.

Transfer students and students currently attending VCU who wish to change their majors to this program must have a minimum GPA of 2.0; however, note the much higher GPA requirement for admission to teacher preparation and then to graduate study. All students in the program, upon completion of 60 hours of undergraduate course work and prior to completion of 90 hours, must apply for admission to teacher education. To be accepted, a student must have a minimum GPA of 2.5 and must have achieved the required commonwealth of Virginia scores on Praxis I tests and must have achieved the established composite score for the three tests.

Students who pursue one of the extended teacher preparation programs follow a series of steps as noted in order to meet all requirements, including the 156 credits.

Step 1: Admission to the university

Requirements

- a.) Scores from Scholastic Aptitude Test (SAT) or American College Test (ACT)
- b.) Minimum 2.0 GPA from high school or previous college

Procedures

- a.) Declare an undergraduate major in the College of Humanities and Sciences
- b.) Declare an education specialization in early childhood/elementary, middle, secondary or special education

Step 2: Admission to teacher preparation

Complete before enrolling in the first practicum (upon completion of 60 credits of liberal arts and prior to completion of 90 credits).

Requirements

- a.) 2.5 GPA or better
- b.) Completion of six hours of English, three hours of mathematics, four hours of laboratory science and six hours of social science and/or history
- c.) Meet Virginia scores required for Praxis I or meet the established composite score
- d.) Confirmation of education specialization (Undecided majors must decide.)
- e.) Enroll in or have completed EDUS 300

Procedures

- a.) Complete Admission to Teacher Preparation Application Form (obtain in Office of Student Services) and submit a current transcript
- b.) Complete EDUS 300; submit required Praxis scores
- c.) Register in dean's office for interview upon returning Admission for Teacher Preparation Application Form; complete required interview with education program faculty

Note: Students must be admitted to Teacher Preparation Program to be eligible for practicum placement and accompanying courses. Applications for practicum are available at the Office of Student Services. (In secondary education, such applications may be distributed at the initial class meeting.)

- d.) Register for, take and submit required Praxis I scores.

Step 3: Application to graduate studies**Requirements**

- a.) 3.0 GPA or better. Students with GPAs of 2.8 to 2.99 may be considered for provisional admission
- b.) Acceptable scores on the Graduate Record Examination (GRE) or Miller Analogies Test (MAT)
- c.) Personal statement addressing reasons for seeking graduate education, including career goals; experience working with age group to be taught; reasons for entering teaching; and success in organizing, planning and implementing work with other individuals
- d.) Three references: it is suggested that these be instructors or advisers in the College of Humanities and Sciences and the School of Education; use Graduate Studies Reference Forms

Procedures

- a.) Obtain Graduate School Admissions packet from the Office of Student Services in Room 3106, Oliver Hall
- b.) Return completed application packet, along with up-to-date transcripts, to the VCU Graduate School

Note: Students must be admitted to the Graduate School to be eligible to enroll in graduate-level courses. No more than six graduate credits taken prior to admission to graduate study may be accepted toward the degree.

Application deadlines

May 1 for fall semester
Nov. 15 for spring semester
March 15 for summer session

Step 4: Internship

All programs require during the fifth year a graduate-level internship (TEDU 672). Applications for internship can be obtained in the Office of Student Services in Room 3106, Oliver Hall. Individuals choosing special education are placed in two different settings, one for emotional disturbance and one for mental retardation, each in a different semester. Individuals in early childhood/elementary education

are placed in a kindergarten and a grade one through six in the same semester. Individuals in middle and secondary education typically have a single placement, although perhaps with two different teachers.

Requirements

- a.) 3.0 GPA or better on graduate courses
- b.) Admission to teacher preparation and to graduate study
- c.) Completed application and transcripts submitted by established deadlines

Procedures

- a.) Obtain application form from the Office of Student Services
- b.) Submit copies of transcripts and required statement to a professional studies adviser for review
- c.) Obtain approval signature of professional studies adviser
- d.) Submit completed application to Office of Student Services by Sept. 15 for the following spring semester; by March 1 for the following fall semester

Step 5: Admission to the profession

(during the final semester of enrollment)

Requirements

- a.) Completion of all degree requirements
- b.) Acceptable scores on applicable Praxis II specialty tests
- c.) Completion of application for initial teacher licensure (obtain from Office of Student Services)

Procedures

- a.) Complete applications for undergraduate degree in humanities and sciences with academic major adviser, and graduate degree in education with professional studies adviser
- b.) Submit application for initial teacher licensure with signature of university supervisor or professional studies adviser to the Office of Student Services

Faculty advisement

An academic adviser is assigned to a student by the department of that student's chosen major in the College of Humanities and Sciences. A professional studies adviser is similarly assigned by the Department of Teaching and Learning according to the student's proposed teaching endorsement. This adviser-student relationship continues throughout the course of study at VCU. Student and adviser jointly develop the student's individual program. During the planning process, the student identifies, clarifies and explores his or her personal and professional goals.

Clinical experiences

Programs in elementary, middle and secondary education encompass planned experiences in the field or clinical settings,

including guided practica experiences. These direct experiences lead to an internship.

With the guidance of a mentor, the intern assumes more independence in the field setting. Satisfactory completion of the internship and the preceding training is charted through evaluations made by the university supervisor, colleague-teacher and school administrator.

Professional development schools

A professional development school (PDS) is one where substantial numbers of the faculty are: interested in working with future teachers, participating regularly in staff development and willing to research the answers to questions that concern them about teaching, learning and students. A VCU faculty liaison is in the school on a weekly basis working with teachers, students and administrators, and significant numbers of VCU students are placed there for various clinical experiences. PDSs in 2003 – 04 included:

Elementary

Mary Munford Elementary (Richmond City)

High

Maggie L. Walker Governor's School for Government and International Studies (a regional high school located in Richmond and serving more than a dozen school divisions)

Teacher as reflective practitioner

The guiding theme of the teacher preparation program is "teacher as reflective practitioner." The underlying foundation of instruction in the teacher preparation program is to challenge the prospective teacher to develop skills in critical reflection and to value thoughtful decision making. Candidates demonstrate critical reflection by: being open to and respectful of all stakeholders; taking other perspectives into account; utilizing critical thinking in framing and solving educational problems; making informed, ethical and professional decisions; and taking ethical and professional action.

Demographics consideration in teaching

The demographics of elementary, middle and high school students are changing. There is an increase in the number of students for whom English is not the first language, of

minority students, of students who do not all learn or respond in similar ways and of students who may be identified as possessing a disability.

Future teachers are encouraged to take advantage of opportunities through formal courses and other experiences to gain greater insight and ability addressing learners from differing cultural backgrounds, and considering the needs of learners with different learning styles, participation styles and special abilities or disabilities.

Scholarships and awards

In addition to other awards, students in the Department of Teaching and Learning are eligible for the following scholarships.

- the Virginia Arnold Scholarship (elementary and middle)
- the Pearl Burford Scholarship (elementary)
- the N. Thelma Jones Scholarship (secondary)
- the Ann Elizabeth Marston Scholarship (elementary and secondary)
- the Virginia and Berta M. Newell Endowed Scholarship (elementary and middle)
- the Teacher Education Scholarship (funded by division faculty; elementary, middle, secondary and special education students are eligible)
- the Patricia H. Duncan Scholarship (language arts education)
- Arnold P. Fleshood Scholarship (reading education)
- Phi Delta Kappa Scholarship
- John Van de Walle Scholarship (mathematics education)

Honors study

Students who qualify can participate in the University Honors Program and are eligible to take course sections and special seminars designated “honors.”

Honors sections of the Foundations of Education and Human Development and Learning courses are offered to qualified students, providing them with opportunities for critical investigation in areas of special professional interest.

Standards of learning

Much of the pre-kindergarten through grade 12 curriculum is based on the commonwealth of Virginia’s current Standards of Learning (SOLs). Students preparing to be teachers are advised to examine the SOLs for the grade levels and content areas they plan to teach. The School of Education Web site has a link to the SOLs.

In some instances the content and concepts associated with one or more SOLs may be incorporated in a course in the College of Humanities and Sciences or in the School of Education, but as the SOLs are for a kindergarten through grade 12 curriculum and not a college curriculum, one may need to study several of these on her or his own.

Technology standards

The use of computers, graphing calculators, science probeware and other technologies is integral to successful teaching in today’s schools. Individuals preparing to teach must be competent on each of the eight standards in Virginia’s Technology Standards for Instructional Personnel. These standards may be reached through the School of Education Web page.

Students are advised to consult with the professional studies adviser regarding the program’s requirements for demonstrating competence. Several of the standards may be documented as met by passing the Computer Literacy Examination offered online through Knowledgenet. Please see the General Education Requirements for Bachelor of Arts and Bachelor of Science degrees under the “College of Humanities and Sciences” chapter of this bulletin.

Early Childhood/Elementary Education Program, P-6

This program focuses on the preparation of the teacher planning to work with children from infancy through age 11, covering nursery school and kindergarten through grade six.

After completing this program, the student is eligible for licensure in teaching preschool and elementary grades.

Program requirements – liberal arts and sciences

Individuals choosing the early childhood/elementary education specialization

may select almost any major offered by the College of Humanities and Sciences. A major in one of the content areas typically taught (mathematics, science, English, history or perhaps social science) is particularly appropriate, but majors in other liberal arts areas are acceptable.

The program seeks, among other goals, to prepare teachers to be more comfortable with and better able to teach mathematics and science effectively in kindergarten through grade six. Within or in addition to the general education and academic major requirements in the College of Humanities and Sciences, candidates in the early childhood/elementary education (pre-kindergarten through grade six) specialization are expected to meet these liberal studies requirements.

Program requirements – mathematics and statistical reasoning

The general education requirement is three to six credits; the Early Childhood/Elementary Program requirement is six credits, including three credits in mathematics at the college algebra level or higher and three credits in a statistics course typically taught by a college department of mathematics. Choosing among these courses is recommended:

- MATH 131 Introduction to Contemporary Mathematics
- STAT 208 Statistical Thinking
- STAT 210 Basic Practice of Statistics

Program requirements – natural sciences

The general education requirement is seven to nine credits, with one course each from the physical sciences and the biological sciences, with at least one laboratory; the program requirement is 12 credits, again with at least one course each in the physical sciences and the biological sciences, and two laboratories. Choosing among these courses is recommended:

	credits
Biological sciences	
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
BIOL 102, BIOZ 102L Science of Heredity and Laboratory	5
BIOL 103, BIOZ 103L Environmental Science and Laboratory	5

Physical sciences

CHEM 110, CHEZ 110L Chemistry and Society and Laboratory	3
CHEM 112 Chemistry in the News	3
PHYS 101, PHYZ 101L Foundations of Physics and Laboratory	4
PHYS 107, PHYZ 107L Wonders of Technology and Laboratory	4

Program requirements – interdisciplinary science

The program further requires three credits of interdisciplinary mathematics and science. Choosing among these courses is recommended:

INSC 300 Experiencing Science
INSC 301 Investigating Mathematics and Science
MATH 303 Investigations in Geometry

Program requirements – applied arts

Three credits in applied arts to be designated with the professional studies adviser.

Program requirements – professional studies

Undergraduate	credits
EDUS 300 Foundations of Education	3
PSYC 301 Child Psychology	3
EDUS/PSYC 305 Educational Psychology	3
TEDU 310 Practicum I (with TEDU 414 and TEDU 426)	2
TEDU 310 Practicum II (with TEDU 522)*	2
TEDU 351 Children's Literature I	3
HPEX 390 Physical Education for Elementary Teachers	3
TEDU 414 Curriculum and Methods for Young Children	4
TEDU 426 Teaching Reading and Other Language Arts	3

Graduate

TEDU 517 Science Education in the Elementary School	3
TEDU 522 Teaching Mathematics for Elementary Education	3
TEDU 566 Diagnosis and Remediation in Reading	3
TEDU 591 Social Studies Education in the Elementary School	3
TEDU 605 Theory and Practice of Educating Individuals with Special Needs	3
EDUS 607 Advanced Educational Psychology	3
TEDU 626 Home-School Communication and Collaboration	3
TEDU 672 Internship I and II (P and grades 1-5 placements)	9
EDUS 673 Seminar on Educational Issues, Ethics and Policy	3
	33

* TEDU 310 Practicum II must be taken concurrently with TEDU 522; TEDU 517 and 591 must have been completed; TEDU 566 also must have been completed or taken concurrently with TEDU 310.

Middle Education Program, 6-8

The Middle Education Program prepares the prospective teacher to instruct children between the ages of 11 and 14, grades six through eight. A graduate of this program can be licensed to teach in elementary and middle school grades.

Program requirements – liberal arts and sciences

In addition to satisfying the general education requirements of the College of Humanities and Sciences, candidates selecting middle education as the specialization must first choose a major in one of the subjects taught in middle schools (mathematics, one of the sciences, English, history or a social science such as political science). Other liberal arts majors may be chosen, but an individual with such a major will likely not be as "marketable." Secondly, students must choose an additional concentration of 18 semester credits in another of the content areas described above (most middle schools organize into teams, with a teacher typically responsible for two subjects). Individuals planning to major in English, history or a social science may wish to consider credits in mathematics and science, both for the general education requirement and their own edification, from courses such as these:

	credits
MATH 131 Introduction to Contemporary Mathematics	3
MATH 303 Investigations in Geometry	3
STAT 208 Statistical Thinking	3
STAT 210 Basic Practice of Statistics	3
BIOL 101, BIOZ 101L Biological Concepts and Laboratory	4
BIOL 102, BIOZ 102L Science of Heredity and Laboratory	5
BIOL 103, BIOZ 103L Environmental Science and Laboratory	5
CHEM 110, CHEZ 110L Chemistry in Context and Laboratory	4
CHEM 112 Chemistry in the News	3
PHYS 101, PHYZ 101L Foundations of Physics and Laboratory	4
PHYS 107 Wonders of Technology	4
INSC 300 Experiencing Science	3
INSC 301 Investigating Mathematics and Science	3

Program requirements – professional studies

Undergraduate	credits
EDUS 300 Foundations of Education	3
EDUS 301 Human Development and Learning	3
TEDU 310 Practicum A (concurrent with TEDU 544)	1
TEDU 310 Practicum B (concurrent with TEDU 521 or 540)	1
TEDU 310 Practicum C (concurrent with TEDU 550 or the course not taken with Practicum B)	1
TEDU 407 Educational Media: Utilization	3
	12

Graduate

Choose two of the courses from:	6
TEDU 521 Teaching Mathematics for Middle Education (3)	
TEDU 540 Teaching Middle and High School Sciences (3)	
TEDU 550 Teaching Interdisciplinary Language Arts and Social Studies in the Middle School (3)	

Complete each of these courses:

TEDU 544 Introduction to the Middle School	3
TEDU 562 Reading Instruction in the Content Areas	3
EDUS 607 Advanced Educational Psychology	3
TEDU 672 Internship I and II	9
EDUS 673 Seminar on Educational Issues, Ethics and Policy	3
TEDU 681 Investigations and Trends in Teaching*	3

Graduate selective chosen from:

CMSC 554 Applications of Technology in the Teaching of Mathematics	3
TEDU 556 Computer Applications in Education	
TEDU 600 Organizing for Effective Classroom Instruction	
TEDU 605 Theory and Practice of Educating Individuals with Special Needs	
TEDU 626 Home-School Communication and Collaboration	
EDUS 660 Research Methods in Education	
ENED 601 Young Adult Literature	

33

* Pertinent subject section (e.g., English, mathematics, science or social studies)

Secondary Education Program, 6-12

These programs prepare the student for a career as a secondary school teacher — grades six through 12. Teaching endorsements are available in drama, English, French, German, Spanish, economics, geography, history,

history and social sciences, political science, mathematics, biology, physics, chemistry, and general science. Added endorsements are available in English as a second language and earth science.

Program requirements – liberal arts and sciences

In addition to satisfying the general education requirements of the College of Humanities and Sciences, candidates selecting secondary education as the specialization must choose a major in one of these subjects taught in high schools (biology, chemistry, English, French, German, history, mathematics, physics, political science or Spanish).

Program requirements – professional studies

Undergraduate	credits
EDUS 300 Foundations of Education	3
EDUS 301 Human Development and Learning	3
TEDU 310 Practicum A (concurrent with TEDU 537)	2
TEDU 310 Practicum B (concurrent with TEDU 540, 543, 545, 547 or 548)	1
	9
Graduate	
TEDU 537 Secondary School Curriculum	3
One of:	3
TEDU 540 Teaching Middle and High School Sciences	
TEDU 543 Teaching Secondary School Foreign Languages	
TEDU 545 Teaching Secondary School Mathematics	
TEDU 547 Teaching Secondary School Social Studies	
TEDU 548 Teaching Secondary School English	
EDUS 607 Advanced Educational Psychology	3
TEDU 672 Internship I and II**	9
EDUS 673 Seminar on Educational Issues, Ethics and Policy	3
TEDU 681 Investigations and Trends in Teaching:* English; Foreign Language; Mathematics; Science; Social Science	3
Graduate selectives ⁺	9
	33

* Select section matching content area to be taught

** A minimum of 21 credits, including EDUS 300 and 301; TEDU 310 and 537; one of TEDU 540, 543, 545, 547 or 548; EDUS 607 or 673; and the required selective (see number 1 below), must be completed prior to the internship.

⁺ Graduate selectives are to be chosen from:

1. **Three credits from:**
 - Technology:**
 - TEDU 556 Computer Applications in Education
 - CMSC 554 Applications of Technology in the Teaching of Mathematics (required in mathematics)
 - or
 - Reading:**
 - TEDU 562 Reading Instruction in the Content Areas
 - or
 - Classroom management:**
 - TEDU 600 Organizing for Effective Classroom Instruction
 - TEDU 631 Behavior Management of Students with Disabilities
 - or
 - Special education:**
 - TEDU 605 Theory and Practice in Educating Individuals with Special Needs
 - SELD 600 Characteristics of Persons with Learning Disabilities

2. **Six credits from other courses in number 1 above, from the academic major or from courses such as these:**
 - TEDU 521 Teaching Mathematics for Middle Education (required in math)
 - TEDU 626 Home-School Communication and Collaboration
 - EDUS 660 Research Methods in Education
 - ENED 601 Young Adult Literature

All selectives should be chosen in consultation with the professional studies adviser.

Master of Education programs

The department offers Master of Education programs designed to provide advanced educational preparation for practitioners. These programs are:

- Curriculum and instruction
- Early, middle or secondary education
- Instructional technology
- Library/media
- Reading

These programs typically require 36 to 42 credits. See the Graduate and Professional Programs Bulletin for a more detailed description of each program.

Post-baccalaureate Certificate in Teaching Program

The Post-baccalaureate Certificate in Teaching Program is designed for the student holding a bachelor's degree in a field other than education, who wishes to teach in

secondary schools, and for whom a master's degree is not a priority. Those candidates planning to teach at the secondary level must have a major or its equivalent in the subject they wish to teach. Candidates also should have an advanced degree.

Candidates are required to complete a minimum of 24 designated hours beyond the bachelor's level. The minimum number of hours, including those at the undergraduate level, varies by certificate track. For instance, 30 hours are required for the secondary education track, whereas 38 hours are required for a student in the middle education track. (See the Graduate and Professional Programs Bulletin for a more detailed description).

Department of Special Education and Disability Policy

John Kregel

Professor and Department Chair (1983)
 B.A. Coe College
 M.S. University of Kansas
 Ed.D. 1983 University of Georgia

The mission of the Department of Special Education and Disability Policy is to prepare skilled, effective professionals who can meet the educational needs of children and youth with disabilities and their families throughout undergraduate and graduate degree programs, discover new instructional and service delivery strategies through an ongoing program of research and share information on these strategies to a wide audience through collaborative relationships with children and youth with disabilities, their families, educators, local, state and federal government agencies, and other professionals throughout the commonwealth and across the nation.

At the undergraduate level, the department offers extended teacher preparation programs that allow students to prepare for professional roles as teachers of students with emotional disturbance, learning disabilities, or mental retardation. At the graduate level, the department offers five master's degree programs. Successful completion of one of these degree programs leads to endorsement in early childhood special education, emotional disturbance, learning disabilities, mental retardation or severe disabilities. In addition, the department offers a Ph.D.

in Education with an emphasis on special education and disability policy.

Extended Teacher Preparation Program

The School of Education, in cooperation with the College of Humanities and Sciences, offers extended teacher preparation programs in special education (kindergarten through grade 12). The successful completion of these programs results in the simultaneous awarding of both a bachelor's and a master's degree. The program requires 156 credits, at least 33 of which must be at the graduate level.

For students planning to become special education teachers, any major in the humanities or the sciences is acceptable. In the extended program, a student generally begins work on the professional studies component in the third year of study.

The extended program in special education is designed to develop competencies in the prospective teacher to teach children and youth in two of these three special education areas: emotional disturbance, learning disabilities or mental retardation. The Master of Teaching in Special Education Program leads to dual endorsement in two areas of special education in kindergarten through grade 12.

Information on specific requirements for special education majors is available in the Department of Special Education and Disability Policy, in the College of Humanities and Sciences' associate dean's office or through the department of the chosen major. Students may visit <http://www.soe.vcu.edu/depts/sedp> for information about programs in the Department of Special Education and Disability Policy. A student in the extended program must maintain a minimum cumulative GPA of 2.5 for admission to teacher preparation and clinical experience, and prior to the fifth year a minimum GPA of 3.0 for admission to the graduate study portion of the program.

Special Education Program, K-12

This two-pronged program is designed to develop competencies in the prospective teacher to teach children and youth in two of these three special education areas: emotional disturbance, learning disabilities or mental retardation. The Master of Teaching in Special Education Program leads to dual endorsement in two areas of

special education in kindergarten through the 12th grade.

Admission to the Extended Teacher Preparation Program

Any undergraduate admitted to VCU who declares a major in the College of Humanities and Sciences is eligible to declare a specialization in special education.

Transfer students and students currently attending VCU who wish to change their majors to this program must have a minimum GPA of 2.0; however, note the much higher GPA requirement for admission to teacher preparation and then to graduate study. All students in the program, upon completion of 60 hours of undergraduate course work and prior to completion of 90 hours, must apply for admission to teacher education. To be accepted, a student must have a minimum GPA of 2.5 and must have achieved the required Commonwealth of Virginia scores on Praxis I tests and must have achieved the established composite score for the three tests.

Students who pursue one of the extended teacher preparation programs follow a series of steps as noted in order to meet all requirements, including the 156 credits.

Step 1: Admission to the university

Requirements

- Scores from Scholastic Aptitude Test (SAT) or American College Test (ACT)
- Minimum 2.0 GPA from high school or previous college

Procedures

- Declare an undergraduate major in the College of Humanities and Sciences
- Declare an education specialization in early childhood/elementary, middle, secondary or special education

Step 2: Admission to teacher preparation

Complete before enrolling in the first practicum (upon completion of 60 credits of liberal arts and prior to completion of 90 credits).

Requirements

- 2.5 GPA or better
- Completion of six hours of English, three hours of mathematics, four hours of laboratory science and six hours of social science and/or history
- Meet Virginia scores required for Praxis I or meet the established composite score
- Confirmation of education specialization (Undecided majors must decide.)
- Enroll in or have completed EDUS 300

Procedures

- Complete Admission to Teacher Preparation Application Form (obtain in Office of Student Services) and submit a current transcript
- Complete EDUS 300; submit required Praxis scores
- Register in dean's office for interview upon returning Admission for Teacher Preparation Application Form; complete required interview with education program faculty

Note: Students must be admitted to Teacher Preparation Program to be eligible for practicum placement and accompanying courses. Applications for practicum are available at the Office of Student Services. (In secondary education, such applications may be distributed at the initial class meeting.)

- Register for, take and submit required Praxis I scores.

Step 3: Application to graduate studies

Requirements

- 3.0 GPA or better. Students with GPAs of 2.8 to 2.99 may be considered for provisional admission
- Acceptable scores on the Graduate Record Examination (GRE) or Miller Analogies Test (MAT)
- Personal statement addressing reasons for seeking graduate education, including career goals; experience working with age group to be taught; reasons for entering teaching; and success in organizing, planning and implementing work with other individuals
- Three references: it is suggested that these be instructors or advisers in the College of Humanities and Sciences and the School of Education; use Graduate Studies Reference Forms

Procedures

- Obtain Graduate School Admissions packet from the Office of Student Services in Room 3106, Oliver Hall
- Return completed application packet, along with up-to-date transcripts, to the VCU Graduate School

Note: Students must be admitted to the Graduate School to be eligible to enroll in graduate-level courses. No more than six graduate credits taken prior to admission to graduate study may be accepted toward the degree.

Application deadlines

- May 15 for fall semester
- Nov. 15 for spring semester
- March 15 for summer session

Step 4: Internship

All programs require during the fifth year a graduate-level internship (TEDU 672). Applications for internship can be obtained in the Office of Student Services in Room 3106, Oliver Hall. Individuals choosing special education are placed in two different settings, one for emotional disturbance and one for mental retardation, each in a different semester. Individuals in early childhood/elementary education

are placed in a kindergarten and a grade one through six in the same semester. Individuals in middle and secondary education typically have a single placement, although perhaps with two different teachers.

Requirements

- a.) 3.0 GPA or better on graduate courses
- b.) Admission to teacher preparation and to graduate study
- c.) Completed application and transcripts submitted by established deadlines

Procedures

- a.) Obtain application form from the Office of Student Services
- b.) Submit copies of transcripts and required statement to a professional studies adviser for review
- c.) Obtain approval signature of professional studies adviser
- d.) Submit completed application to Office of Student Services by Sept. 15 for the following spring semester; by March 1 for the following fall semester

Step 5: Admission to the profession

(during the final semester of enrollment)

Requirements

- a.) Completion of all degree requirements
- b.) Acceptable scores on applicable Praxis II specialty tests
- c.) Completion of application for initial teacher licensure (obtain from Office of Student Services)

Procedures

- a.) Complete applications for undergraduate degree in humanities and sciences with academic major adviser, and graduate degree in education with professional studies adviser
- b.) Submit application for initial teacher licensure with signature of university supervisor or professional studies adviser to the Office of Student Services

Faculty advisement

An academic adviser is assigned to a student by the department of that student's chosen major in the College of Humanities and Sciences. A professional studies adviser is similarly assigned by the Department of Special Education and Disability Policy according to the student's proposed teaching endorsement. This adviser-student relationship continues throughout the course of study at VCU. Student and adviser jointly develop the student's individual program. During the planning process, the student identifies, clarifies and explores his or her personal and professional goals.

Scholarships and awards

In addition to other awards, students in the Department of Special Education and

Disability Policy are eligible for the following scholarships.

- the Teacher Education Scholarship (funded by division faculty; elementary, middle, secondary and special education students are eligible)
- the Howard G. Garner Scholarship for Developmental and Interdisciplinary Studies
- Phi Delta Kappa Scholarship
- Rizpah Welch Scholarship (special education)

Clinical experiences

Programs in special education encompass planned experiences in the field or clinical settings, including guided practica experiences. These direct experiences lead to an internship.

With the guidance of a mentor, the intern assumes more independence in the field setting. Satisfactory completion of the internship and the preceding training is charted through evaluations made by the university supervisor, colleague-teacher and school administrator.

Emotional disturbance

This phase prepares the student to teach children and youth with emotional disturbance in public school, residential and correctional settings. The student learns to apply a variety of interventions because of the integration of didactic course work and clinical experience. The program emphasizes the development of a wide range of teaching competencies derived from a number of theoretical models to promote social, behavioral and academic growth in children and youth with emotional disturbance.

Mental retardation

This phase prepares the student to teach children and youth with mental retardation in public, private and community settings. The program stresses assessment, curriculum, service delivery and adaptational techniques.

Learning disabilities

This phase prepares the student to teach children and youth with learning disabilities in school settings. The program accentuates

the development of a broad range of teaching competencies allowing for wide latitude in the application of a prolific variety of academic interventions.

Program requirements – liberal arts and sciences

In addition to satisfying the general education requirements of the College of Humanities and Sciences, candidates selecting special education as the specialization may choose almost any College of Humanities and Sciences major offered. One in the social sciences, such as psychology or sociology, may be especially useful, but majors in English, a science, mathematics, history or similar programs are acceptable.

Program requirements – professional studies

All courses listed below are three semester credit hours unless otherwise indicated.

credits
30

Required courses

Undergraduate

- EDUS 300 Foundations of Education
- TEDU 330 Survey of Special Education
- EDUS 301 Human Development and Learning or PSYC 305 Educational Psychology
- TEDU 426 Teaching Reading and Other Language Arts

Graduate

- TEDU 521 Teaching Mathematics for Middle Education or TEDU 522 Teaching Mathematics for Elementary Education
- TEDU 531 Collaborative/Consultation Skills for Working with Families and Professionals
- TEDU 533 Educational Assessment of Individuals with Exceptionalities
- SELD 530 Language Disabilities: Assessment and Teaching or MNRT 500 Language Intervention for Young Children and Learners with Severe Disabilities
- TEDU 631 Behavior Management of Students with Disabilities
- TEDU 632 Secondary Programming for Students with Disabilities

Selectives

9

Social/cultural foundations selective (one of the following is chosen with adviser.)

- EDUS 601 Philosophy of Education
- EDUS 608 History of Western Education
- EDUS 610 Social Foundations of Education
- EDUS 612 Education and the World's Future
- EDUS 614 Contemporary Educational Thought
- EDUS 673 Seminar on Educational Issues, Ethics and Policy

Educational/psychological foundations selective
(one of the following is chosen with adviser.)

Non-psychology majors must take EDUS/PSYC 607
Advanced Educational Psychology
Psychology majors may select one of the following:
EDUS 602 Adolescent Growth and Development
EDUS 603 Seminar in Child Growth and
Development
EDUS/PSYC 607 Advanced Educational
Psychology
EDUS 609 Learning Theories in Education
Option: With adviser's permission, students with
a strong background in educational psychology
and/or child development may select: EDUS
660 Research Methods in Education

Graduate or undergraduate selective

This one selective is a course (at the 600 level or
below) chosen with adviser from the following list:

TEDU 542 Parent/Professional Partnership
A second language course
A second reading course
A course in the third special education area (emotional
disturbance, learning disabilities or mental
retardation)
A course in early childhood special education (ECSE)
A course in counselor education (CLED)
A course in rehabilitation counseling (RHAB)
A course approved by the program faculty

Concentration courses 28

Two of the following three special education
areas (12 semester credit hours of courses,
16 semester credit hours of clinical experiences)

Emotional disturbance

EMOD 400 Characteristics of Children/Adolescents
with Emotional Disturbance
EMOD 501 Teaching Students with Emotional
Disturbance
Clinical experience:
TEDU 310 Practicum: Emotional Disturbance (2)
EMOD 672 Internship: Emotional Disturbance (6)

Learning disabilities

TEDU 444 Introduction to Learning Disabilities
SELD 501 Methods of Clinical Teaching
Clinical experience:
TEDU 310 Practicum: Learning Disabilities (2)
SELD 672 Internship: Learning Disabilities (6)

Mental retardation

MNRT 400 Characteristics of Children and Youth
with Mental Retardation
MNRT 560 Curriculum Design for Students with
Mental Retardation
Clinical experience:
TEDU 310 Practicum: Mental Retardation (2)
MNRT 672 Internship: Mental Retardation (6)

Total 67

* A minimum of 33 semester credit hours must be
taken at the graduate level.

**Minor in foundations of special
education**

The minor provides an opportunity to
explore the field of special education and
disabilities, for focused investigation of
human behavior within the context of educa-
tional institutions or explorations related to
possible or real career needs. Completion
of this minor does not result in licensure or
endorsement for teaching in the common-
wealth of Virginia.

The minor requires a minimum of 21
semester hours. If one or more of these
courses is taken to satisfy a general studies
requirement or a major requirement, it may
also be counted toward the minor.

	credits
EDUS 300 Foundations of Education	3
EDUS 301 Human Development and Learning or EDUS/PSYC 305 Educational Psychology	3
TEDU 330 Survey of Special Education	3
Selectives (select any four):	12
TEDU 444 Introduction to Learning Disabilities (3)	
TEDU 531 Collaborative/Consultation Skills for Working with Families and Professionals (3)	
EMOD 400 Characteristics of Children/ Adolescents with Emotional Disturbance (3)	
MNRT 400 Characteristics of Children and Youth with Mental Retardation (3)	
HPEX 431 Adaptive Physical Education (3)	
TEDU 541 Infants and Young Children with Special Needs	

Master of Education programs

The department offers Master of Educa-
tion programs designed to provide advanced
educational preparation for practitioners.
These programs are:

Special education
Early childhood special education (birth to age 5)
Emotional disturbance
Learning disabilities
Mental retardation
Severe disabilities

These programs typically require 36 to
42 credits. See the Graduate and Profes-
sional Programs Bulletin for a more detailed
description of each program.

Courses in adult education (ADLT)**ADLT 402 How Adults Learn**

Semester course; 3 lecture hours. 3 credits. Overview
of the adult as a learner. Topics include how and what
adults learn, why adults participate in learning and

major barriers to learning for adults. Implications for
teachers/trainers of adults are explored.

ADLT 403 Human Resource Development

Semester course; 3 lecture hours. 3 credits. Course
designed to improve qualifications of those seeking
employment in the human resources field. Focuses
on human resource development, organization
development and their relationship to human resource
management (HRM).

**Courses in educational studies
(EDUS)****EDUS 200 Education in American Society**

Semester course; 3 lecture hours. 3 credits. An elective
course for non-education majors, including those who
may be exploring careers in education. An examination
of the complex nature of our American educational
system and various societal influences on that system.
The course will include an exploration of some critical
issues affecting the future of American education, on-
site visits to educational institutions, and other field
experiences in settings that will permit exploration of
career options.

EDUS 203 Focus on Choice

Semester course; 3 lecture hours; 3 credits. A career-
planning experience for adults focusing on discontinuity
in life patterns and a review of current educational and
occupational opportunities. Consideration of the world
of work, fields of education, volunteer service and the
development of one's own potential will be featured.

EDUS 300 Foundations of Education

Semester course; 3 lecture hours. 3 credits. The
historical, sociological and philosophical backgrounds
of educational theories and practices. The aim of
the course is to help the student develop a basic
understanding of education in the modern world.

EDUS 301 Human Development and Learning

Semester course; 3 lecture hours. 3 credits. A study of
human development through the life span with special
emphasis on child and adolescent psychology, the nature
of learning, and basic concepts of learning theories.

EDUS 305/PSYC 305 Educational Psychology

Semester course; 3 lecture hours. 3 credits. The
application of psychological principles to the teaching-
learning process, with special emphasis on theories of
learning and development.

EDUS 400 Independent Study

Semester course; 1-6 hours. 1-6 credits. Opportunities
are provided for supervised research and independent
study in selected areas. Designed for advanced students.
All work offered on an individual basis with the approval
of instructor and departmental chair.

EDUS 401 Pupil Evaluation

Semester course; 3 lecture hours. 3 credits. Principles and
procedures of evaluation of pupil growth in cognitive,
affective, and psychomotor domains for a prospective
classroom teacher; construction and analysis of teacher-
made tests and other formal and informal assessment
procedures; interpretation and use of criterion-
referenced and norm-referenced standardized tests in
measuring group and individual achievement.

EDUS 476 Methods for Residence Hall Assistants

Semester course; 3 lecture hours. 3 credits. Prerequisite: Serve in VCU residence halls or permission of instructor. Course designed primarily to present resident assistants and others with student development concepts, peer assistance and helping skills, and group techniques. Residence halls will be used as primary learning laboratories.

EDUS 494 Topical Seminar in Education

Semester course; variable; 1-3 credits. May be repeated for a maximum of six credits. A seminar intended for group study by personnel interested in examining topics, issues or problems related to the teaching, learning and development of students.

Course in emotional disturbance (EMOD)

EMOD 400 Characteristics of Children/Adolescents with Emotional Disturbances

Semester course; 3 lecture hours. 3 credits. Surveys the nature of children and adolescents with emotional disturbances and behavior disorders with emphasis on the psychological, biophysical, sociological and ecological factors that related to their educational needs. Related topics include definitions, classification, school identification, assessment procedures and intervention approaches.

Courses in health, physical education and exercise science (HPEX)

HPEX 200 Strength, Endurance and Flexibility Training

Semester course; 3 lecture hours. 3 credits. Presents the knowledge-base and pedagogical principles of strength, flexibility, aerobic and anaerobic training programs; enables students to develop and apply conditioning programs or modify existing programs to accommodate specific individual needs; emphasizes the acquisition of training and conditioning principles and assists students in developing independent problem-solving and decision-making skills. Includes practical application of theory.

HPEX 201 Individual Sports and Lifelong Leisure Activities

Semester course; 3 lecture/laboratory hours. 3 credits. Health, physical education and exercise science majors only. Prepares students to develop educational skills and methodology for instruction of individual sports in the classroom, gymnasium and outdoor field settings; students acquire skills needed to teach individual sports in middle and high school environments.

HPEX 202 Team Sports

Semester course; 3 lecture/laboratory hours. 3 credits. Health, physical education and exercise science majors only. Develops educational skills and methodology for instruction of team sports in the classroom, gymnasium and outdoor field settings; students acquire skills needed to teach team sports in middle and high school environments.

HPEX 211 Tumbling and Elementary Rhythmics

Semester course; 2 laboratory hours. 1 credit. Prepares students to work with elementary children 4 to 12

years of age in rhythmic activities; includes elementary tumbling, activities and games designed to help a child's rhythmic ability.

HPEX 216 Lifeguard Training

1-2 credits.

HPEX 217 Water Safety Instruction

1-2 credits.

HPEX 218 Scuba

1 credit.

HPEX 219 Organization and Administration of Aquatic Activities

1 credit.

HPEX 220 Introduction to Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205 and BIOZ 205L. Corequisite: HPEZ 220L. An introduction to the field of athletic training. Includes the prevention and basic care of athletic injuries in the physically active.

HPEZ 220L Introduction to Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 220. Laboratory fee required. A laboratory to introduce the basic skills used by an athletic trainer in the prevention and care of athletic injuries in the physically active.

HPEX 230 History and Philosophy of Health and Physical Education

Semester course; 3 lecture hours. 3 credits. An overview of the professional aspects of health and physical education. Historical and philosophical concepts, evaluation and research methods, current issues and trends, and career opportunities are discussed. Field experiences allow exposure to various professionals and facilities related to the health and physical education domains.

HPEX 231 Principles of Accident Prevention

Semester course; 3 lecture hours. 3 credits. This course is designed to provide information on the magnitude of the accident problem in the nation. Special attention is given to concepts and theories of accident prevention, particularly as they relate to use of highways.

HPEX 232 Introduction to Driver Education

Semester course; 3 lecture hours. 3 credits. A current automobile operator's permit is required. An introduction to the vehicle operator's task within the highway transportation system: driver task analysis.

HPEX 240 Introduction to Health Professions

Semester course; 3 lecture hours. 3 credits. Offered: fall semester. Provides an overview of the state of kinesiotherapy and health promotion in the United States; explores historic and current roles of kinesiotherapists and other allied health professionals; career choices within health care presented through guest lectures and structured visits to clinical sites.

HPEX 250 Medical Terminology

Semester course; 1 lecture hour. 1 credit. Self-directed learning experience for students entering a medical or allied health profession. Presents medical terms by their root word, suffix and prefix. Develops skills to build and decode medical terms by their word parts. Develops ability to recognize and use common medical abbreviations.

HPEX 270 Introduction to Personal Health

Semester course; 3 lecture hours. 3 credits. An introduction to the five dimensions of health emphasizing personal application and encouraging conscious decisions about a variety of behaviors that can make a difference in one's health status.

HPEX 271 Safety, First Aid and CPR

Semester course; 3 lecture hours. 3 credits. This course includes American Red Cross and/or American Heart Association certification in Multimedia Standard First Aid and Basic Life Support (cardiopulmonary resuscitation). In addition, basic principles of accident causation and prevention are presented.

HPEX 291 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Restricted to majors in the Health, Physical Education and Recreation division. May be repeated up to a maximum of three credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education and professional introduction courses; may include participatory and experimental formats dictated by the faculty supervisor; credits determined by the number of contact hours of the experience.

HPEX 292 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional core introduction courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 293 Field Practicum I

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in this writing intensive course; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 294 Field Practicum II

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and field supervisor; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 295 Clinical Practicum I

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; summary papers, observational logs, resumes and updated five-year plans are completed in

this writing intensive course; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 296 Clinical Practicum II

Semester course; variable practicum hours. 3-6 credits. Health, physical education and exercise science majors only. Provides observational and small group experiences for the pre-professional student; includes planned observations, tutorials and small group involvement under the supervision of the faculty and clinical supervisor; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 320 Upper Extremity Assessment of Athletic Injuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205, BIOZ 205L, PHIS 206 and PHIZ 206L. Corequisite: HPEZ 320L. Includes the assessment and management of upper extremity athletic injuries in the physically active. Includes the study of head, neck, thoracic, abdominal, shoulder, elbow, forearm, wrist, hand and finger injuries.

HPEZ 320L Upper Extremity Assessment of Athletic Injuries Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 320. Laboratory fee required. This laboratory course includes practice in the skills of assessment and management of upper extremity athletic injuries in the physically active. Includes head, neck, thoracic, abdominal, shoulder, elbow, forearm, wrist, hand and finger injuries.

HPEX 321 Lower Extremity Assessment of Athletic Injuries

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 320 and HPEZ 320L. Corequisites: HPEZ 321L and HPEZ 396. This course is designed to acquaint the student with the proper assessment and treatment procedures for lower extremity athletic injuries in the physically active. The course will include the prevention, care and treatment of lower back, hip, thigh, knee, lower leg, ankle and foot athletic injuries.

HPEZ 321L Lower Extremity Assessment of Athletic Injuries Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 321. Laboratory fee required. This laboratory course is designed to acquaint the student with the proper assessment and treatment procedures for lower extremity athletic injuries in the physically active. The lab will include prevention, care and treatment of lower back, hip, thigh, knee, lower leg, ankle and foot athletic injuries.

HPEX 322 Therapeutic Exercise in Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205, BIOZ 205L, PHIS 206 and PHIZ 206L. Corequisite: HPEZ 322L. Acquaints the student with the proper use of therapeutic exercise in the treatment and rehabilitation of athletic injuries in the physically active. Includes the use of therapeutic exercise in the treatment of groin, thigh, hip, knee, lower leg, ankle, foot, shoulder, elbow, wrist, hand, finger and back athletic injuries.

HPEZ 322L Therapeutic Exercise in Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 322. This laboratory course is designed to acquaint the student with the proper use of

therapeutic exercise in the treatment and rehabilitation of athletic injuries in the physically active. The lab course will include the skills of the therapeutic exercise used in the treatment of groin, thigh, hip, knee, lower leg, ankle, foot, shoulder, elbow, wrist, hand, finger and back athletic injuries.

HPEX 324 Therapeutic Modalities in Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205, BIOZ 205L, PHIS 206 and PHIZ 206L. Corequisite: HPEZ 324L. Provides the student with a knowledge of the proper use of therapeutic modalities in the treatment of athletic injuries in the physically active.

HPEZ 324L Therapeutic Modalities in Athletic Training Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: HPEX 324. Laboratory fee required. This laboratory course will allow the student to develop the practical skills required to properly apply therapeutic modalities used to treat athletic injuries in the physically active.

HPEX 325 Pathology and Pharmacology in Athletic Training

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 220, HPEZ 220L, PHIS 206 and PHIZ 206L. Acquaints the student with the pathology of athletic injuries and the proper use of pharmacology in the treatment of athletic injuries. Includes the pathomechanics of sports injuries and the use of medication in the treatment of sports injuries.

HPEX 330 Movement Education

Semester course; 3 lecture hours. 3 credits. For teachers of early childhood elementary and physical education. Emphasis is given to the role of movement and theory in the educational program and its implications for curriculum development and learning. Major consideration is given to the development of movement competency and self-awareness through creativity and exploration.

HPEX 331 Methods in Driver Education

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 232. This course is designed to provide driver education instructional principles and methodology.

HPEX 332 Motor Learning and Performance

Semester course; 3 lecture hours. 3 credits. This course is designed to introduce the student to the major concepts of motor control and motor learning and the influencing conditions. It will provide a framework for understanding the structure and function of the nervous system in relation to perception and motor control. Other topics include the general nature of skill acquisition and how learners interact with the environment while performing motor tasks. The theoretical framework underlying learning and memory are related to the acquisition of motor skills.

HPEX 333 Psychosocial Aspects of Sport and Physical Activity

Semester course; 3 lecture hours. 3 credits. The focus of this course is the scientific study of the behavior of individuals and groups within sport and physical activity in terms of the psychological effects and factors of sport participation, and in terms of the social relationships and social settings within which sport participation occurs.

HPEX 334 Measurement and Analysis in Teaching and Exercise Science

Semester course; 3 lecture hours. 3 credits. Topics include selecting, administering, scoring and evaluating tests in the areas of general motor performance, health screening, fitness, sport skills and knowledge. Includes scientific test construction and basic statistical analysis.

HPEX 335 Elementary Physical Education for Physical Education Majors

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Designed to enhance knowledge of elementary physical education through an analysis of the aims, goals, objectives, programs and teaching methods. Construction of year-round curriculum and daily lesson plans. Emphasis also placed upon the acquisition of administrative and organizational knowledge dealing with facilities, equipment, teaching aids, testing, measurement and safety.

HPEX 350 Nutrition

Semester course; 3 lecture hours. 3 credits. Provides learning opportunities that enable the student to acquire a practical and useful knowledge based on the sound principles of applied human nutrition. Emphasis will be on nutritional needs through the cycles of life providing information that will enhance the student's own lifestyle and provide experience in interpreting nutritional information for the public.

HPEX 351 Issues in Sexuality

Semester course; 3 lecture hours. 3 credits. An overview of content, principles, and strategies relating to issues in human sexuality both in the community and school settings. Basic concepts of human sexuality as they develop in today's world are presented. Issues include sexual maturity, reproductive systems, conception, birth, abortion and varieties of sexual behavior and sexual dysfunctions and disorders.

HPEX 352 Substance Abuse

Semester course; 3 lecture hours. 3 credits. A survey of drugs that are used and abused in contemporary society. Multidisciplinary lectures and discussions include the historical and sociological perspectives of drugs in the school and community; the psychological and physiological effects of drug use; and the role of local and regional resources. Designed for students, teachers, counselors, administrators and other interested persons. Rehabilitation methods and prevention programs also will be discussed.

HPEX 353 Trends in Modern Diseases

Semester course; 3 lecture hours. 3 credits. Communicable disease, nutritional disease, prevention (immunizations), developmental abnormalities, congenital defects, the handicapped child and adolescent medicine are included.

HPEX 354 Coping and Adaptation

Semester course; 3 lecture hours. 3 credits. Focuses on common stress factors in life such as death, personal loss, life changes, divorce and emotional problems, such as anger, loneliness and frustration. Strategies for dealing with such stressors are discussed and applied to both personal and professional settings.

HPEX 355 School and Community Health Resources

Semester course; 3 lecture hours. 3 credits. Acquaints the student with current available school and community resources and educational materials for health information. Available services in a community health program will be surveyed.

HPEX 356 Community Health Education and Promotion: Theory and Practice

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 355. Pre- or corequisites: HPEX 353, HPEX 354. Introduces theories, roles and skills that are the foundation for the professional practice of community health education. Emphasizes the growing significance of health education in preventing and/or treating health problems, health promotion and improving quality of life. Presents the historical evolution and development of the profession and the various settings in which health educators practice. Assists in the preparation of students for certification as health education specialists.

HPEX 370 Coaching Seminar

Semester course; 1 lecture hour. 1 credit. A lecture/discussion course that identifies the practical administrative and organizational responsibilities coaches encounter. Realistic problem solving is stressed.

HPEX 371 Psychology of Physical Activity

Semester course; 3 lecture hours. 3 credits. Examines psychological issues related to physical activity, exercise and sport participation. Topics include individual and group motivation theory and techniques, leadership effectiveness, mental health, mental skills training, injury rehabilitation, eating disorders, exercise adherence, addiction, overtraining and use of ergogenic aids. Emphasizes examination of current research and application of psychological principles in a physical activity setting.

HPEX 372 Survey of Kinesiology and Physiology of Exercise

Semester course; 3 lecture hours. 3 credits. Examines the basic concepts of human biomechanics and exercise physiology. Includes basic and applied kinesiology and metabolic, endocrinological, cardiovascular and respiratory responses and adaptations to exercise. Emphasizes the integration of kinesiological and physiological principles.

HPEX 373 Structural Kinesiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL 205. Presents the anatomical aspects of human motion with particular attention given to application of anatomical structure and terminology in analysis of physical activities; emphasizes structure and function of the human musculoskeletal system and qualitative analysis of motor skills.

HPEX 374 Biomechanics

Semester course; 3 lecture hours. 3 credits. Develops an understanding of the mechanical principles applied to the analysis of a wide variety of motor skills; topics include kinematics, kinetics and biomechanics instrumentation in the context of teaching, coaching and rehabilitation.

HPEX 375 Physiology of Exercise

Semester course; 3 lecture hours. 3 credits. Prerequisite: BIOL/PHIS 206. Corequisite: HPEZ 375L. Physiological changes in the human organism resulting from exercise, investigation of recent research in diet, drugs, fatigue, cardiovascular/respiratory fitness, conditioning programs for various age groups and the effects of exercise upon various components of physical fitness and health. Application of specific problems to physical education programs. Laboratory experience in the use of research instruments.

HPEZ 375L Physiology of Exercise Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisite: BIOL/PHIS 206. Pre- or corequisite: HPEX 375. Provides practical application of the physiological principles presented in HPEX 375; assists students in the development of practical application competencies associated with assessment of acute and chronic effects of exercise on the human body.

HPEX 390 Physical Education for the Elementary Teacher

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Methods and curriculum planning in physical education for the elementary school teacher and physical education specialist. Emphasis is placed on using activities and games to foster the growth and development of the child with a focus on the psychomotor and affective domains.

HPEX 391 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and some core professional courses; may include participatory experiences in which the student plays an active role in the experience; credits determined by the number of contact hours of the experience.

HPEX 392 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education and professional introduction and some professional core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 393 Field Experience I

Semester course; variable hours. 3-6 credits. Health, physical education and exercise science majors only. Precedes the in-depth student teaching experience or the in-depth exercise science field experience; includes planned observations, tutorials, small group involvement under the supervision of the faculty and field supervisor; practices routine, basic and advanced procedures; minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 394 Field Experience II

Semester course; variable hours. 3-6 credits. Health, physical education and exercise science majors only. Designed to provide supervised practical experience in the teaching process or delivery of health education/health promotion programs; opportunities to further abilities in physical education and exercise science through practical application of skills in school or agency settings; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements.

HPEX 395 Clinical Experience I

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community

wellness education programs; provides experiences in an approved affiliate site under the supervision of faculty and approved clinical instructors; gains practical experience in routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements and clinical competencies addressed.

HPEX 396 Clinical Experience II

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides experiences in an approved affiliate site under the supervision of faculty and approved clinical instructors; gains practical experience in routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain specific course requirements and clinical competencies addressed.

HPEX 420 Athletic Training Administration

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 395 and 396. Acquaints the student with the proper organization and management techniques used in health care administration of athletic training programs. Includes organization, management and administration of health care of the physically active in the athletic setting.

HPEX 430 The Organization, Administration and Supervision of the Intramural Sports Program

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Experiences in the organization and administration of an intramural sports program. Lecture will be devoted to the theory, philosophy, history and plans for the conduct of an intramural sports program. Laboratory experience will be obtained by working in intramural programs.

HPEX 431 Adapted Physical Activity

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 205, BIOZ 205L, PHIS/BIOL 206, PHIZ/BIOZ 206L. Prepares future teachers and professionals to meet the needs of persons with disabilities in organized health, physical education and rehabilitation programs in the school, community or hospital setting. Provides an overview of those disabilities found most frequently in public school and rehabilitation settings. Service Learning course.

HPEX 432 Methods and Curriculum in Physical Education

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem solvers and decision makers by applying previously acquired knowledge to curriculum design and instruction in multiple settings; students acquire pedagogical skills and gain insight into the development of a physical education curriculum for elementary, middle and high school levels.

HPEX 433 Methods and Curriculum in Health Education

Semester course; 3 lecture hours. 3 credits. Prepares students to become independent problem solvers and decision makers by applying previously acquired knowledge to curriculum design and instruction in a classroom setting; students acquire pedagogical skills and gain insight into the development of a health

education curriculum for elementary, middle and high school levels.

HPEX 440 Chronic Disease and Exercise

Management

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 375 and HPEZ 375L. Presents in-depth information of various concepts specifically related to exercise management of persons with chronic disease and/or disability. Provides scientific knowledge of various chronic diseases and disabilities that are commonplace and can be managed with physical activity. General topics include cardiovascular and pulmonary diseases, metabolic diseases, immunological and hematological diseases, orthopaedic diseases and disabilities, neuromuscular disorders, and cognitive, emotional, and sensory disorders. Focuses on the understanding of specific physical and physiological characteristics associated with the various diseases and disabilities.

HPEX 441 Assessment and Exercise Intervention in Health and Disease

Semester course; 2 lecture and 1 laboratory hours. 3 credits. Prerequisite: HPEX 440. Provides in-depth information of various concepts specifically related to exercise assessment and prescription for healthy persons and those with chronic disease and/or disability. Examines the various concepts specifically related to measurement of cardiorespiratory fitness, pulmonary function, body composition, flexibility and muscular strength and endurance. Focuses on the development of exercise and physical activity prescriptions for healthy and diseased populations.

HPEX 445 Organization and Administration for Health Professions

Semester course; 3 lecture hours. 3 credits. Offered: spring semester. Prerequisite: HPEX 240 or permission of instructor. Reviews the management of both human and nonhuman resources in allied health professions. Emphasis placed on planning, organizing, staffing, directing and controlling health care options; addresses fiscal management issues, human relations and resource management, and standards of ethical practice.

HPEX 450 Program Planning and Evaluation

Semester course; 3 lecture hours. 3 credits. Prerequisite: HPEX 356. Pre- or corequisites: SOCY 445, PSYC 412. Presents the foundations of planning, implementation and evaluation of community health education programs. Exposes students to programming and evaluation in a variety of community health settings, including schools, work sites, hospitals, state and local health departments and nonprofit agencies.

HPEX 470 Exercise Programming and Leadership

Semester course; 3 lecture hours. 3 credits. Prerequisites: HPEX 200 and HPEX 375 and HPEZ 375L. Provides knowledge and skills necessary for assessing, interpreting, and designing health and activity programs for apparently healthy populations. Develops leadership skills through presentation of ACSM exercise testing procedures and implementation of exercise prescriptions.

HPEX 491 Special Topic in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Offers students the opportunity to participate in an approved professional experience related to the students' knowledge base of general education, professional introduction and

extensive core professional courses; may include research based projects or more academically rigorous experiences; credits determined by the number of contact hours of the experience.

HPEX 492 Independent Study in Health, Physical Education and Exercise Science

Semester course; 1-3 credits. Health, physical education and exercise science majors only. May be repeated up to a maximum of three credits. Enables a student to create an individualized research project or professional experience based on specific professional needs and goals; must have adviser's approval; experiences based on the student's knowledge base of general education, professional introduction and extensive core courses; credits determined by the number of contact hours and extensiveness of the project.

HPEX 493 Field Experience III

Semester course; variable hours. 3-12 credits. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 494 Field Experience IV

Semester course; variable hours. 3-6 credits. Health, physical education and exercise science majors only. An in-depth field experience in a public school, health education/health promotion agency or other approved setting; designed to provide the pre-professional student with greater practical application of skills culminating in full responsibility for planning, implementing and evaluating the classroom, agency or facility activities; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites and specific course requirements.

HPEX 495 Clinical Experiences III

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides experiences in an approved site under the supervision of faculty and approved clinical instructors; practices routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; a minimum of 50 contact hours per credit hour required; consult with adviser to obtain a course syllabus regarding prerequisites, specific course requirements and clinical competencies addressed.

HPEX 496 Clinical Experience IV

Semester course; variable clinical hours. 3-6 credits. Health, physical education and exercise science majors only. Addresses required competencies in the athletic training, kinesiotherapy or community wellness education programs; provides hands-on experiences in an approved site under the supervision of faculty and approved clinical instructors; practices routine, basic and advanced procedures associated with athletic training, kinesiotherapy or community wellness; consult with adviser to obtain course syllabus regarding prerequisites, specific course requirements and clinical competencies addressed.

Activity courses

HPEX 100 Experimental Health and Physical Education

1 credit.

HPEX 101 Foundations of Healthful Living

1 credit.

HPEX 102 Strength Training

1 credit.

HPEX 104 Adapted Physical Activity

1 credit.

HPEX 106 Fencing

1 credit.

HPEX 107 Badminton

1 credit.

HPEX 108 Gymnastics

1 credit.

HPEX 109 Racquetball

1 credit.

HPEX 110 Handball

1 credit.

HPEX 112 Tennis

1 credit.

HPEX 113 Wrestling

1 credit.

HPEX 114 Bowling

1 credit.

HPEX 115 Rugby

1 credit.

HPEX 116 Archery

1 credit.

HPEX 117 Golf

1 credit.

HPEX 121 Self Defense: Karate or Judo

1 credit.

HPEX 125 Basketball

1 credit.

HPEX 126 Flag Football

1 credit.

HPEX 127 Field Hockey

1 credit.

HPEX 128 Soccer

1 credit.

HPEX 129 Lacrosse

1 credit.

HPEX 137 Volleyball

1 credit.

HPEX 138 Team Handball

1 credit.

HPEX 139 Track and Field

1 credit.

HPEX 150 Beginning Swimming
1 credit.

HPEX 151 Intermediate Swimming
1 credit.

HPEX 156 Synchronized Swimming
1 credit.

HPEX 157 Springboard Diving
1 credit.

HPEX 158 Aquatic Sports and Games
1 credit.

Courses in mental retardation (MNRT)

MNRT 400 Characteristics of Children and Youth with Mental Retardation

Semester course; 3 lecture hours. 3 credits. A study of the nature and needs of children and youth with mental retardation. Explores medical, biological and physical aspects of mental retardation, cause of retardation and introductory assessment and instructional techniques.

Courses in reading and study skills (RDSS)

RDSS 100 Reading and College Study Skills

Semester course; 3 lecture hours. 3 credits. A study of effective reading and study skills at the college-level. Emphasis is placed on vocabulary development as well as reading and study strategies.

RDSS 101 Advanced Reading, Study and Communication Skills

Semester course; 3 lecture and laboratory hours. 3 credits. Prerequisite: RDSS 100, adviser's recommendation, or instructor's permission. A study of advanced reading and study skills at the college-level. Students develop and apply critical reading-thinking skills, library research skills and advanced vocabulary.

Courses in recreation, parks and sport leadership (RPSL)

RPSL 506 Contemporary Issues in Therapeutic Recreation

Semester course; 3 lecture hours. 3 credits. Prerequisite: RPSM 371, 472 or equivalent. An examination of contemporary issues affecting the delivery of leisure services and programs to disabled persons. Both the scope and nature of leisure opportunities available to disabled individuals are considered.

RPSL 510 Tourism Policy

Semester course; 3 lecture hours. 3 credits. The examination of tourism policy with emphasis upon components involved in the formulation and implementation of public policy. The course will include an analysis of the legislative programs of regional and national tourism organizations.

Courses in recreation, parks and sport management (RPSM)

RPSM 195 Recreation Leadership

Semester course; 3 lecture hours. 3 credits. Course provides a study of the theories of leadership, group dynamics, and human relationships used in recreation delivery systems. Students acquire and demonstrate practical skills in planning, organizing, leading, participating and evaluating a wide variety of recreation activities selected from the basic areas of programming such as social recreation, music, dance, drama, arts and crafts, environmental-outdoor recreation, special events, sports and games, linguistics and hobby clubs.

RPSM 200 Introduction to Outdoor Recreation Activities

Semester course; 3 lecture hours. 3 credits. A basic introduction to the theory and practice of outdoor adventure recreation. Emphasis is given to knowledge and understanding of the theoretical and philosophical foundations of participation in outdoor adventure recreation programs. Students will be exposed to an experiential approach to learning. Through involvement with activities, students will develop skills in planning, administering, and evaluating outdoor adventure recreation programs.

RPSZ 201L Backpacking

Semester course; 2 laboratory hours. 1 credit. Prerequisite: RECR 200 or permission of instructor. An introduction to backpacking. Utilizing lectures, readings and hands-on-experience, emphasis will be given to the skills and knowledge necessary for safe, low-impact, short-to-moderate-duration travel through back country areas.

RPSZ 202L Flatwater Canoeing

Semester course; 28 laboratory hours. 1 credit. Prerequisites: RECR 200 and ability to swim, or permission of instructor. Introduction to flatwater canoeing. Utilizing lectures, readings and on-the-water experience, emphasis will be given to the skills and knowledge necessary for planning and implementing flatwater canoe trips. Topics include safety, locations for trips, equipment and portaging, as well as the issues of conservation and impact.

RPSZ 203L Whitewater Canoeing

Semester course; 2 laboratory hours. 1 credit. Prerequisites: RECR 202L and ability to swim or permission of instructor. A basic introduction to whitewater paddling, utilizing lectures, readings and on-the-water experience. Emphasis will be given to the skills and knowledge necessary for planning and implementing whitewater canoe trips, including communication and the structure for leading group trips. Course is taught evenings and weekends as found in the Schedule of Classes.

RPSZ 204L Rock Climbing

Semester course; 2 laboratory hours. 1 credit. A basic introduction to rock climbing, utilizing lectures, readings and rock climbing experiences. Emphasis will be placed on safety, equipment and conservation, as well as techniques of belaying, climbing and rappelling. Attention is given to the importance of communication and personal feelings of mastery and success in outdoor adventure recreation. Course is taught evenings and weekends as found in the Schedule of Classes.

RPSM 261 Recreation, Parks and Sport Medicine in Modern Society

Semester course; 3 lecture hours. 3 credits. Introduction to the historical and philosophical foundations of leisure and recreation; implications of continued growth of the leisure phenomenon in contemporary society.

RPSM 300 Wilderness Education I

Semester course; 1 lecture hour. 1 credit. Corequisite: RPSZ 300L. Designed to examine the principal philosophical foundations of adventure theory and wilderness leadership. Concepts of judgment, decision making, leadership and environmentally correct practices are introduced.

RPSZ 300L Wilderness Education I Laboratory

Semester course; 2 laboratory hours. 1 credit. Corequisite: RECR 300. Designed to practice the principal philosophical foundations of adventure theory and wilderness leadership through field experiences.

RPSM 301 Wilderness Education II

Semester course; 1 lecture hour. 1 credit. Prerequisites: RPSM 300 and RPSZ 300L. Corequisite: RPSZ 301L. Explores the theoretical foundations involved in utilizing the wild outdoors with minimal impact. Principles of wilderness ethics, land stewardship, expedition behavior and technical skills are introduced.

RPSZ 301L Wilderness Education II Laboratory

Semester course; 2 laboratory hours. 1 credit. Prerequisites: RECR 300 and RECR 300L. Corequisite: RECR 301. Designed to practice the principles and techniques of wilderness ethics, land stewardship, expedition behavior and back country travel.

RPSM 303 Leisure Delivery Systems

Semester course; 3 lecture hours. 3 credits. Evaluation of public, private and commercial agencies that provide recreation services. Particular emphasis is given the types of leisure activities offered in relationship to the recreation market.

RPSM 320 Recreation Analysis

Semester course; 3 lecture hours. 3 credits. Examines various approaches to the study of leisure. Assesses the use of free time and the expenditure of time and money to fulfill leisure needs.

RPSM 331 Recreation Site Selection and Analysis

Semester course; 3 lecture hours. 3 credits. An overview of the site selection and development processes will be analyzed as individual elements and the interrelationships among all the elements will be reviewed. Consideration will be given to the social, political, physical and legal aspects of the park planning process.

RPSM 332 Recreation Site Design and Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: RPSM 331. General principles of planning and development of basic recreation areas and facilities; specific principles of design relating to outdoor recreation facilities; standards relative to space requirements, location and programs; trends in site design and development.

RPSM 340 Introduction to Sport Management

Semester course; 3 lecture hours. 3 credits. Acquaints the student with management principles, techniques and functions related to the business fundamentals of sport. Includes communications, personnel, finance, public relations, legal aspects, facilities and program development.

RPSM 341 Introduction to Travel and Tourism

Semester course; 3 lecture hours. 3 credits. Examination of historical perspective, basic policy issues and social and economic impact of the travel and tourism field. Functions, programs and objectives of various types of travel and tourism organizations will be studied.

RPSM 371 Introduction to Therapeutic Recreation

Semester course; 3 lecture hours. 3 credits. An introduction to services for special populations. Examines the various agencies and institutions, which provide such services as well as the professional competency necessary for the delivery of leisure services to the handicapped; the physically, socially and mentally disabled; and the aged. Introduces the student to client assessment and programming.

RPSZ 371L Introduction to Therapeutic Recreation Laboratory

2 laboratory hours. 1 credit. Corequisite: RECR 371. This laboratory requires a minimum of 36 contact hours in three specified settings under supervision of certified therapeutic recreation specialists. An introduction to field experience in therapeutic recreation settings. The acquisition of field experience concurrent with classroom introductory material regarding leisure services for populations with physical, mental, emotional or social limitations, offers professional practice, individualized feedback and a holistic view of therapeutic recreation service for students.

RPSM 395 Recreation Program Development

Semester course; 3 lecture hours. 3 credits. Prerequisite: RPSM 195. Principles of recreation program development; intensive study of the recreation program areas available to participants; analysis of the methods and techniques of program implementation and program evaluation.

RPSM 403 Management of Recreation, Park and Sport Management Agencies

Semester course; 3 lecture hours. 3 credits. Principles of the administrative process. Deals with basic procedures of recreation administration, with particular emphasis on legal foundations, organizational structure, management theory, personnel practices and policies, legal liability, activity and liability insurance.

RPSM 404 Revenue Sources for Parks and Recreation

Semester course; 3 lecture hours. 3 credits. Examination of the financing, budgeting and marketing techniques used to develop and operate leisure service opportunities.

RPSM 431 Advanced Recreation Facilitation Techniques

Semester course; 3 lecture hours. 3 credits. The course provides a study of advanced leadership, group dynamics and human relationships used in leisure delivery systems. Students acquire skills in facilitation techniques including decision making, problem solving, conflict management and evaluation strategies.

RPSM 440 Administration of Sport Facilities

Semester course; 3 lecture hours. 3 credits. Prerequisite: RPSM 340. Examines the planning, construction, programming, staffing and use of sport facilities through classroom and field experiences. Studied from the standpoint of the development process. Covers planning processes, and the maintenance of outdoor and indoor athletic, physical education, fitness and sport facilities.

RPSM 441 Law and Sport

Semester course; 3 lecture hours. 3 credits. Prerequisite: RPSM 340. Presents the legal aspects of sport/activity service systems. Emphasizes regulations in amateur athletics, liability for injury in sport activities, antitrust laws, facility accommodation for persons with special needs and strategies to prevent legal action.

RPSM 442 Group Travel Management

Semester course; 3 lecture hours. 3 credits. A study of the processes and procedures involved in the planning and organization of group travel. Emphasis will be given to the economic and political dimensions of travel, deregulation, how travel agencies function, professional liability and future trends in the field.

RPSM 445 Conference and Convention Planning

Semester course; 3 lecture hours. 3 credits. The planning, organizing, promoting and implementing of conferences and conventions. Included will be the development of conference programming, financing and public relations as well as negotiations with meeting facilities, hotels and food services agencies.

RPSM 461 Recreation Resource Management

Semester course; 3 lecture hours. 3 credits. A comprehensive overview of recreation resource management institutions, both public and private. Emphasis is given to the public sector at the federal, state and local levels. Professional, service and educational organizations contributing to outdoor recreation are examined. The legal framework operating within recreation resource management also is covered.

RPSM 465 Park Operations and Maintenance

Semester course; 3 lecture hours. 3 credits. The purpose of this course is to gain an understanding of the concepts, principles and practices of park operations and maintenance. Quantitative and qualitative resource evaluation will be emphasized. Special consideration is given to methods and techniques for determining management and operations policies.

RPSM 471 Clinical Practice and Procedures in Therapeutic Recreation

Semester course; 3 lecture hours. 3 credits. Designed to equip students with the knowledge and skills required of therapeutic recreation specialists in clinical practice. Exposure to standards of practice, activity analysis, documentation and holistic approaches to delivering services will be included.

RPSM 472 Therapeutic Recreation Program Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: RPSM 371; open to therapeutic recreation option majors only. Instructs students in the techniques of assessment, planning, implementation and evaluation of therapeutic recreation programs for a variety of clients with special needs.

RPSM 473 Leisure and the Aged

Semester course; 3 lecture hours. 3 credits. An analysis of the leisure needs of the aged. The need for specialized leisure programs for the aged in a variety of community and institutional settings will be explored. Preretirement counseling will be emphasized.

RPSM 475 Recreation in Correctional Settings

Semester course; 3 lecture hours. 3 credits. A survey of recreational needs of inmates in adult and juvenile correctional institutions, short-term institutions and community-based correctional institutions. The development of specialized programming and the role of recreation in the rehabilitative process will be examined.

RPSM 476 Leisure Counseling

Semester course; 3 lecture hours. 3 credits. An introduction to the theory and application of leisure counseling for the general public and those with special needs. The use of leisure counseling as a means of client evaluation and assessment also will be examined.

RPSM 480 Specialized Recreation Programs for Handicapped Children

Semester course; 3 lecture hours. 3 credits. Development of recreation programs for handicapped children in schools, other institutions and community settings. Consideration will be given to the development of leisure skills and goal accomplishments.

RPSM 490 Seminar

Semester course; 3 seminar hours. 3 credits. Advanced seminar in recreation, parks and tourism that analyzes in-depth special problem areas and current issues. Independent research on special projects.

RPSM 491 Topics in Recreation

Semester course; 3 lecture hours. 3 credits. Maximum six credits per semester; maximum total of nine credits in all departmental topics courses that may be applied to the major. An in-depth study of specific content areas in recreation, park and tourism operations. See the Schedule of Classes for specific topics to be offered each semester.

RPSM 492 Independent Study in Recreation

Semester course; 16 credits. Prerequisite: Permission of departmental chair. Under the supervision of a faculty member, the student selects a topic of concern to investigate. Each student must present his or her findings in writing and pass an oral examination before a faculty committee.

RPSM 493 Internship

Semester course; 8-12 variable credits. Prerequisites: Senior standing and a minimum of 21 credits in major. Opportunities are offered for the student to gain practical experience in a variety of public, private and commercial agencies. The student will complete a comprehensive field placement in an approved setting that will consist of 40 hours per week for 10 to 16 weeks. Each 50 hours of supervised experience equals one credit hour.

Courses in teacher education (TEDU)

TEDU 307/ENGL 307 Teaching Writing Skills

Semester course; 3 lecture hours. 3 credits. Studies the theory and methods for teaching writing to students in middle and secondary schools. Teaches strategies for prewriting, composing, peer revision, evaluation and topic construction. Includes extensive journal and essay writing. May not be used to satisfy the literature requirements of the College of Humanities and Sciences.

TEDU 310 Practicum

1-3 credits. May be repeated for a maximum of six credits. A field placement that precedes student teaching, the nonschool supervised experience or the internship. Includes planned observations, tutorials and small group involvement.

TEDU 330 Survey of Special Education

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite for all other undergraduate special education

courses. For majors and nonmajors. An overview of the field of special education. Includes current trends, legal issues, definitions, etiology, identification, characteristics and appropriate services for children and adults with a range of exceptionalities.

TEDU 351/ENGL 351 Children's Literature I

Semester course; 3 lecture hours. 3 credits. Designed to give students an appreciation of values of children's literature; includes biography, fable, myth, traditional and modern fanciful tales and poetry, as well as a survey of the history of children's literature.

TEDU 407 Educational Media: Utilization

Semester course; 3 lecture hours. 3 credits. The study and use of audiovisual equipment and aids, and means for using them for more effective presentations to groups.

TEDU 414 Curriculum and Methods for Young Children

Semester course; 4 lecture hours. 4 credits. Prerequisite: Admission to teacher preparation program. Corequisite: TEDU 310. A study of developmentally appropriate curriculum and methods for young children, including diversity, behavior guidance and management, planning, learning environments, curriculum and assessment of the whole child. Includes an overview of the history of

early childhood education and issues currently facing the profession.

TEDU 426 Teaching Reading and Other Language Arts

Semester course; 3 lecture hours. 3 credits. Presents teaching strategies and materials in reading and the other language arts based on current theory and research. Emphasizes the interrelatedness of listening, speaking, reading and writing and the importance of naturalistic language experiences.

TEDU 433/ENGL 433 Literature for Adolescents

Semester course; 3 lecture hours. 3 credits. Designed to acquaint the prospective middle and secondary school English teacher with the nature, scope and uses of adolescent literature. The student is acquainted with reading materials for meeting the varied needs and interests of adolescents.

TEDU 444 Introduction to Learning Disabilities

Semester course; 3 lecture hours. 3 credits. Corequisite: TEDU 310. Provides a comprehensive view of the field of learning disabilities with emphasis on the school-age years. Covers basic information pertaining to causes, characteristics, assessment, parent and family factors and laws pertaining to individuals with learning disabilities.

TEDU 461 Teaching Persons with Mental Disabilities

Semester course; 3 lecture hours. 3 credits. Prerequisites: Permission of instructor. Taken concurrently with TEDU 310. Curriculum development and organization of activities for the mentally retarded at different maturational levels with specific attention to program content equipment, materials and resources.

TEDU 485 Directed Student Teaching I

6 credits. Prerequisites: Admission to TEDU 310 or equivalent with a grade of "C" or better and recommendation of practicum supervisor. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

TEDU 486 Directed Student Teaching II

6 credits. Prerequisites: Admission to TEDU 310 or equivalent with a grade of "C" or better and recommendation of practicum supervisor. A classroom teaching experience in a public school or other approved setting, which includes opportunities for increasing involvement with children. Culminates in full responsibility for planning, implementing and evaluating classroom activities.

School of Engineering

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Mission of the school

Through teaching and research, VCU School of Engineering creates knowledge and transforms ideas in engineering and life sciences into technologies that enhance regional and global prosperity. The school prepares its students for leadership and entrepreneurship through collaborative and interdisciplinary partnerships.

Founded in 1995 and graduating its first class in May 2000, the School of Engi-

neering is the result of a collaboration rare in the history of higher education in Virginia. Virginia Commonwealth University has, with the support of Virginia Polytechnic Institute and State University, created a school that brings innovative engineering and computer science education to central Virginia. Building reciprocal relationships with business and industry in the greater Richmond area, contributing to the region's manufacturing enterprises, and aggressively developing an international orientation, the school has developed programs of research and study that are sensitive to the unique demands of its time and culture. The three founding programs (1996) are chemical, electrical and mechanical engineering.

In 1998, the undergraduate degree program in biomedical engineering was added to the original engineering disciplines of chemical, electrical and mechanical engineering. The long standing and accredited degree program of computer science was assimilated into the School of Engineering beginning with the fall 2001 semester.

Students are offered an integrated and multidisciplinary curriculum in biomedical/chemical/computer/electrical/mechanical engineering or computer science. Supported by the internationally recognized strengths of MCV Hospitals and the cutting-edge developments to be generated by the Virginia Biotechnology Research Park, the School of Engineering at VCU has innovative curricula that emphasize creativity and imagination. By encouraging their interaction with practicing professionals, students are continually aware of the real-world application of their research and their studies.

Serving the best and the brightest students and supporting VCU's dedication to diversity by opening doors of opportunity to underrepresented populations in the engineering and computer science professions, the school continually strives to enrich the technological and intellectual climate of the metropolitan area.

Discovering new knowledge is the goal of the best of the nation's schools. The School of Engineering at VCU celebrates not only the discovery of knowledge, but also the creative integration and application of that knowledge.

Curricula

Intellectual creativity and integration, which are essential to a successful engineering or computer science career in today's marketplace, are central components of the School of Engineering's mission. The curricula of the School of Engineering offer students a unique opportunity to synthesize intuitive thought with traditional analytical approaches, and to mesh a recognition of global, social, political and environmental concerns with traditional reductionist thought. Practical application and innovative theory are firmly joined in the school's curricula. The programs are designed to:

- develop breadth of expertise and individuality of method by encouraging concentration in a second discipline sufficient for a minor,
- require study in international relations and familiarity with culture,
- require study in biological sciences,
- address, via specialized presentations, the complexity and pervasiveness of contemporary issues, such as ethics and environmental impact,
- foster a student/faculty rapport highly conducive to effective advising, networking and the development of professional interpersonal skills, and
- include multidisciplinary study throughout the curriculum.

In addition to the curriculum requirements existing for each academic degree program, all students seeking a baccalaureate degree within the School of Engineering

are required to fulfill the general education requirements, as specified by that program.

Voluntary internships and work experiences

Practical applications of classroom and instructional laboratory learning provide a vital component to a graduating student's portfolio. The School of Engineering emphasizes and strongly encourages all undergraduate students to work in a field appropriate for the chosen degree program. These work experiences may be filled in a variety of ways including part-time work, cooperative education experiences, or full-time work in a variety of technical, industrial, manufacturing or research environments.

A mandatory engineering-related internship is a requirement for students of chemical, electrical and mechanical engineering (see "Mandatory engineering internships").

Biomedical engineering students receive unique, practical experiences through the freshmen rounds (EGRB 101) and the junior level practicum (EGRB 301) courses. Refer to the Biomedical Engineering Department description for more details. Practical work experiences outside the classroom are encouraged for biomedical engineering students. These experiences are not a mandatory part of the curriculum for the bachelor's degree in biomedical engineering.

Part-time or co-op work experiences are encouraged for computer science students, but are not a mandatory part of degree requirements.

Mandatory engineering internships

A mandatory engineering related internship is a requirement for students of chemical, electrical and mechanical engineering. Students in these degree programs must complete an engineering internship and complete the course, ENGR 410 Review of Internship, prior to receiving a bachelor's degree in one of these three engineering disciplines. The Office of the Dean and, specifically, the associate dean, manages and organizes this required internship program for the chemical, electrical and computer, and mechanical engineering departments. Ideally, this internship experience is completed during the summer between the junior and senior years. The required course, ENGR

410, offered each fall semester, provides the means by which students review the experience, prepare written and oral presentations, and receive academic credit for the internship. Many times, nontraditional students employed in engineering related work experiences may complete the internship and ENGR 410 prior to the senior year. Most recently, traditional students have garnered acceptable engineering internship opportunities and completed the ENGR 410 course prior to the senior year.

Students in biomedical engineering are not required to complete the course, ENGR 410.

Students in computer science are not required to complete the course, ENGR 410.

Undergraduate degree programs

The School of Engineering offers bachelor of science degrees as follows:

biomedical engineering
chemical engineering
computer engineering
computer science
electrical engineering
mechanical engineering

Students also may be admitted under "Undeclared Engineering" for entrance to the School of Engineering. A field of study can be determined after the first semester.

Double majors (B.S.) in engineering and physics

This program provides biomedical, chemical, electrical, computer and mechanical engineering majors the opportunity to earn a double major in physics, requiring an additional 16 to 19 credits beyond the hours required for the primary engineering major. The requirements for the double major are the same as those for the bachelor of science in physics, where details are provided in the bulletin description for the Department of Physics. Within the double major, a select number of engineering courses are acceptable substitutes for required physics courses, as follows:

- EGRC 204 or EGRM 204 for PHYS 340
- EGRE 309 or 310 for PHYS 376
- Senior Design course sequence for PHYS 450/490 (see each major below)

In addition, select engineering-related courses can be used to satisfy the required nine credits of elective physics and physics-related courses, as detailed in the physics section of this bulletin.

Listed below are the total credits and required courses necessary for biomedical, chemical, electrical and mechanical engineering majors to complete a double major in physics. In addition, the courses that are used from the primary engineering major toward fulfillment of the physics major also are provided.

Biomedical engineering (19 credits): PHYS 301, 320, 340, 376, 380, and PHYZ 320L (one credit), and MATH 307.

Necessary courses used from the biomedical engineering major include: PHYS 207, PHYS 208, STAT 541, EGRB 303, EGRB 427, MATH 310, EGRB 401 and EGRB 402.

Chemical engineering (19 credits): PHYS 301, 320, 376, 380, and PHYZ 320L, MATH 307, and ENGR 412*.

Necessary courses used from the chemical engineering major include: PHYS 207, PHYS 208, EGRC 204, EGRC 301, STAT 541, ENGR 402, ENGZ 402, ENGR 403 and ENGZ 403L.

Electrical and computer engineering (16 credits): PHYS 301, 320, 340 and 380, PHYZ 320L, and STAT 541*.

Necessary courses used from the electrical engineering major include: PHYS 207, PHYS 208, EGRE 224, EGRE 303, EGRE 307, EGRE 309 or 310, ENGR 402 and ENGR 403.

Note: Electrical engineering majors choosing the computer engineering track will need to take additional courses listed for the electrical engineering major (EGRE 303, EGRE 309 or 310, and STAT 541).

Mechanical engineering (16 credits): PHYS 301, 320, 376, 380, and PHYZ 320L, and EGRM 436*.

Necessary courses used from the mechanical engineering major include: PHYS 207, PHYS 208, ENGR 301, EGRM 204, STAT 541, ENGR 402, ENGZ 402, ENGR 403 and ENGZ 403L.

* Indicated course or any other three-credit physics/physics-related elective course as listed in the bulletin description for the department of physics.

With regard to general education requirements, students must fulfill the requirements of their primary engineering major. Any student interested in a physics double major should contact the physics undergraduate adviser, Dr. Baski at (804) 828-8295 or aabaski@vcu.edu.

Minor in physics

If a student fulfills the B.S. degree requirements for a biomedical, chemical, electrical or mechanical engineering major and completes PHYS 320 Modern Physics (three credits) and PHYZ 320L Modern Physics Laboratory (one credit), then the requirements for a minor in physics are satisfied. At least two engineering courses from each discipline are counted as physics-related courses to fulfill the 20 credits necessary for a minor in physics. In March of the semester prior to graduation, the student should bring a graduation with minor application form to the Department of Physics for completion.

Business minor/pre-M.B.A. options

Students may elect to receive a business minor or prepare for graduate study in business. With proper approval from adviser and program chair, a student may replace certain technical electives with the required business courses to receive a bachelor's degree in engineering with a business minor.

Other options include an approved program leading to a bachelor's degree in engineering and a Master of Business Administration (typically requiring an additional year beyond four).

For either option, a detailed course of study and schedule of classes must be presented to and approved by the student's academic adviser and department chair.

A separate information flyer providing the details and specific required courses for these two programs, business minor or M.B.A. foundation, is available in the School of Engineering Office of Student Services, Room 433. It is mandatory that interested students also contact the School of Business, Office of Graduate Studies, (804) 828-4622, for official details and requirements.

Minor areas of concentration

To augment career goals, students may choose, in addition to the major, to elect a minor area of concentration for the study of a discipline of secondary interest. Students interested in pursuing a minor should discuss their intentions with their adviser or the department chair.

A minor designation requires a minimum number of credit hours and a minimum GPA of 2.0 in the minor. The minor becomes

official only after the Office of Records and Registration has received the Change of Major/Minor form signed by the chair of the appropriate program.

Minors in mechanical engineering, electrical engineering, chemical engineering and computer science are offered by the School of Engineering. Refer to each program's description for a definition of a minor for that program.

Graduate studies

The School of Engineering offers advanced education leading to the M.S. degree in engineering, biomedical engineering and computer science. The Ph.D. is offered in engineering and biomedical engineering. The Biomedical Engineering Graduate Program, begun in 1984, is located at the VCU Medical Center and has well-established ties to the schools on that campus. It also participates in the M.D./Ph.D. program with the School of Medicine. Authorized in 2000, the M.S. and Ph.D. programs in engineering provide educational and research experiences in the areas of engineering, manufacturing and business within a multidisciplinary program. Participation in the Commonwealth Graduate Engineering program, coordinated by VCU, enables students to take additional graduate courses from the University of Virginia, Virginia Tech and Old Dominion University via interactive video telecommunications. For further information, see the Graduate and Professional Programs Bulletin for details regarding these programs.

Admission

Applicants to the School of Engineering are required to submit at least 20 high school units with the following minimum distribution of subjects: four units in English, three units of mathematics (through advanced algebra and trigonometry), three units of science (which must include biology, chemistry and physics), and three units of history or social sciences or government. A rigorous high school program is recommended.

Recommended academic background of applicants is as follows:

GPA:	3.3 minimum (unweighted)
SAT:	1150 minimum
Class rank:	top quarter

Transfer students should have a strong background in mathematics and sciences and should have a minimum GPA of 3.0 on a 4.0 scale. See the "Transfer Policies" section for details.

A one-page essay on the topic "Why I Have Chosen My Field of Study" should accompany the application for admission. A personal interview and/or letters of recommendation from teachers might be requested at the discretion of the faculty.

STAR: Student Testing, Advising and Registration

STAR is a one-day, mandatory program designed to assist entering VCU students to begin their college careers.

STAR consists of a full day of orientation for students new to the university, whether entering directly from high school or transferring from a community college or a four-year institution.

A typical STAR day begins with an introductory presentation and usually consists of an overview of the academic programs with special emphasis on those of the freshman and sophomore years. Issues associated with the transition to the university are often reviewed as well as university policies and procedures.

This presentation is followed by the students taking required placement tests. These tests are typically in mathematics and chemistry, as well as possibly a foreign language and English test. Once the test results are available, students receive one-on-one academic advising with a member of the faculty, and finally, classes are scheduled and the students are registered for the upcoming semester.

During STAR, there are opportunities to handle tasks essential to students, such as purchasing a parking permit, submitting immunization authorizations, opening a bank account, obtaining a VCUCard, etc. The goal is to help the students accomplish all these tasks in one day prior to the start of classes.

STAR is offered for four weeks in the summer and during the week before each semester begins. A brochure with a registration form for STAR is mailed to all admitted students by the university-level office.

Academic policies

Students majoring in biomedical, chemical, electrical/computer or mechanical engineering, or computer science must attain a grade of “C” or better in all major courses taken. If a student receives a grade below “C” in any major course, that course must be retaken until the student receives a grade of “C” or better. Department chairs also may identify other vital courses (i.e. math, physics) within the major for which a grade of “C” or better must be achieved.

Because of the rotating nature of higher-level technical electives in the computer science program and the student’s planned graduation date, computer science students may not be able to take advantage of the repeat course option offered by the university. Students should be aware of this rotating schedule and plan accordingly.

In some cases, students may be required to take foundation courses as the result of placement tests in order to prepare themselves to enter the required courses in mathematics, sciences or languages. Credit received for these foundation courses does not count toward the baccalaureate degree.

Scholarships

Students are eligible for merit-based scholarships as a result of submitting a completed application for admission. Please remember that although VCU has a rolling admission policy, engineering scholarship decisions will begin as soon as the university application deadline of Feb. 1 is reached.

Policy on change of major

Students admitted to university academic units outside the School of Engineering who request a change of major to programs of the School of Engineering must meet the same admission standards as other applicants to the School of Engineering.

Freshmen in other schools and the college are expected to meet the same requirements as those students of the entering freshman class of the School of Engineering, preferably 1150 minimum SAT score, 3.3 minimum GPA and class rank in the top quartile. Sophomores and upper division students are required to have a cumulative GPA of “B” or better with no grades below “C” and present an academic record including successful

completion of courses in university physics and mathematics, including at least two semesters of calculus and analytic geometry. All applications for a change of major to the School of Engineering must be approved by the individual department chair.

Appeals to the School of Engineering policies

Students may appeal the above School of Engineering policies. In order to do so, they must prepare a letter to the School of Engineering Policy Appeals Committee stating why they should be given an exception to these policies and providing any documentation required. The letter should be delivered to the dean’s office, and will be forwarded to the committee for consideration.

Graduation requirements

Students in the majors of biomedical, chemical, computer, electrical and mechanical engineering must complete a minimum of 130 credit hours to be eligible for the bachelor’s degree.

Students in computer science must complete a minimum of 120 credit hours to be eligible for the bachelor’s degree.

Requirements for the bachelor’s degrees offered by the School of Engineering (engineering disciplines and computer science) include university undergraduate requirements (refer to the “Academic and General Degree Requirements” chapter in this bulletin), general education requirements (engineering and computer science) and program-level degree requirements.

Students seeking the bachelor’s degree for any of the programs within the School of Engineering (computer science, biomedical/chemical/computer/electrical/mechanical engineering) are responsible for understanding the specific and unique requirements of the individual programs and must complete all of them to be eligible for the granting of the degree sought.

Accreditation

The Accreditation Board for Engineering and Technology (ABET) is the premier organization in the United States that provides accreditation to engineering and computer science programs. Individual programs (i.e.,

chemical engineering) are accredited at the bachelor’s level.

The Engineering Accreditation Commission (EAC) of ABET has recently accredited the Chemical, Electrical and Mechanical Engineering programs at the VCU School of Engineering.

The Computer Accreditation Commission (CAC) of ABET has provided accreditation to the Computer Science Program for many years.

The Biomedical Engineering Program is on schedule to apply for accreditation with ABET. A site visit including a comprehensive review of the Biomedical Engineering Program was completed in fall of 2003. A final decision is due in summer of 2004.

The State Council for Higher Education of Virginia (SCHEV) has approved a degree program in Computer Engineering, currently a “track” within the accredited Electrical Engineering program. A request for accreditation by ABET will be completed at an appropriate future date.

General education requirements, engineering disciplines

All students seeking a baccalaureate degree within the biomedical, chemical, electrical or mechanical engineering programs are required to fulfill the university undergraduate general education requirements in addition to the curriculum requirements of the engineering degree program.

1. Communicating

Students should demonstrate effective oral and written communication skills. They should be able to communicate ideas clearly and effectively, consistent with the standards of the engineering profession.

All engineering students will demonstrate competence in English composition by successfully completing ENGL 101-200 Writing and Rhetoric Workshop I and Writing and Rhetoric Workshop II (3-3).

Both oral and written communication skills will be stressed and developed in all engineering classes, as appropriate. In particular, the capstone design courses taught in the senior year of each of the four engineering disciplines will be designated as writing intensive courses. In these senior design classes, students will prepare written reports that will be critiqued from both a technical and a writing standpoint. The reports submitted will be redone as required as the students write to learn and ultimately meet the standards of written communication required in industry. Also, the reports on the design projects will be presented

orally to their classmates and the public, using state of the art presentation techniques.

2. Ethics

Students will have an understanding of the ethical characteristics of the engineering profession and practice as well as a sensitivity to the socially related technical problems that confront the profession and the engineer's responsibility to protect both occupational and public health and safety. Students will be able to identify and analyze ethical issues in engineering.

Engineering ethics will be introduced in the course ENGR 101 Introduction to Engineering, as well as all other engineering courses, as appropriate. Engineering students also will take one of the following courses in ethics offered by the Department of Philosophy and Religious Studies. Other ethics courses may be approved by the student's adviser and program chair.

PHIL 211 History of Ethics	3
PHIL 212 Ethics and Applications	3
PHIL 213 Ethics and Health Care	3
RELS 340/INTL 341 Global Ethics and the World's Religions	3

3. Quantity and form

Students will demonstrate a good knowledge of the application of calculus and differential equations in the analysis of engineering problems. They should develop analytical skills and logical reasoning powers regarding the application of these mathematical methods in engineering.

All engineering students will take MATH 200-201 Calculus with Analytic Geometry (4-4) and MATH 301 Differential Equations (3). Physics and engineering analysis courses will be calculus-based.

4. Science and technology

Engineering students will have an understanding of the process and concepts of modern experimental science including laboratory application of the fundamental ideas and methods.

All engineering students will successfully complete CHEM 101 General Chemistry and CHEZ/FRSZ 101L General Chemistry Laboratory plus select a course in the life sciences from the following list: (some engineering disciplines require the completion of CHEM 102 and CHEZ/FRSZ 102L also.)

BIOL 101 Biological Concepts	3
BIOL 102 Science of Heredity	4
BIOL/ENVS 103 Environmental Science	4
BIOL 151 and 152 Introduction to Biological Sciences I and II	3,3
LFSC 101 Introduction to Life Sciences	3

5. Interdependence

Students will develop an awareness of the strong global interdependence of culture, economics and society and prepare for a possible international career in engineering by successfully completing one internationally focused course in the social sciences and one global culture course in the

humanities, including foreign languages (at the intermediate level).

Courses (three credit minimum) will be selected from the following lists. (Other appropriate courses may be selected with the approval of an adviser and program chair.)

Social sciences (choose one)	
ECON 325 Environmental Economics	3
GEOG 322 World Political Geography	3
MGMT 319 Organizational Behavior	3
MGMT 418 International Management	3
MRBL 378 International Marketing	3
POLI/INTL 105 International Relations	3
POLI/INTL 361 Issues in World Politics	3
POLI/INTL 365 International Political Economy	3

AND

Humanities/languages (choose one)	
CHIN 201 Intermediate Chinese	3
FREN 201 Intermediate French	3
GRMN 201 Intermediate German	3
ITAL 201 Intermediate Italian	3
PORT 201 Intermediate Portuguese	3
RELS 340/INTL 341 Global Ethics and the World's Religions	3
RUSS 201 Intermediate Russian	3
SPAN 201 Intermediate Spanish	3

6. Visual and performing arts

Students should demonstrate an enhanced understanding and experience of the various visual and performing arts. They should understand the process of artistic expression and be able to respond to artistic work from a variety of perspectives and contexts.

Engineering students will take one course (1.5 credit minimum) in an appropriate area of the visual or performing arts from the following list. (Other appropriate courses may be selected with the approval of an adviser and program chair.)

A. Basic-level courses designed specifically for non-arts majors.

Art education	
ARTE 121-122 The Individual in the Creative Process	
ARTE 301-302 Art for Elementary Teachers	
ARTE 408 Two-dimensional Art Experiences	
ARTE 409 Three-dimensional Art Experiences	

Art foundation	
ARTF 121-122 Introduction to Drawing	

Communication arts and design	
CARD 191 Studio Topics in Communication Arts and Design	

Dance/choreography	
DANC 171, 172 T'ai Chi	
DANC 183-184 Introduction to Modern Dance Technique	
DANC 313 Dance in World Cultures	

Interior design
IDES 103-104 Introductory Studio Course

Music
APPM 193 Class Lessons in Voice
APPM 195 Class Lessons in Guitar
MHIS 105-106 Introduction to Writing Music
MHIS 243 Music Appreciation

Painting and printmaking
PAPR 155, 156 Drawing and Painting, Basic

Photography and film
PHTO 243 Photography

Sculpture
SCPT 209 Introduction to Sculpture

Theatre
THEA 107, 108 Introduction to Stage Performance

B. Basic-level courses open to both arts and non-arts majors.

Art education
ARTE 353 Art and Perceptual Communication

Art history
ARTH 103, 104 Survey of Western Art
ARTH 145, 146 Survey of Asian Art
ARTH 207 Introduction to Non-Western Art
ARTH 270, 271 History of the Motion Picture

Crafts
CRAF 201-202 Metalsmithing
CRAF 211-212 Jewelry
CRAF 221 Woodworking Techniques
CRAF 241 Ceramics: Handbuilding
CRAF 242 Ceramics: Wheelthrowing
CRAF 251, 252 Introduction to Glassworking
CRAF 261, 262 Beginning Textiles

Dance/choreography
DANC 105-106 Improvisation
DANC 111-112 Ballet Technique I
DANC 114, 214, 314, 414 Summer Dance Workshop
DANC 121, 122/AFAM 121, 122 Tap Technique I
DANC 126, 127/AFAM 126, 127 African-Caribbean Dance I
DANC 141, 142 Ballroom Dancing
DANC 243 Dynamic Alignment
DANC 291 Topics in Dance
DANC 313 Dance in World Cultures

Fashion design and merchandising
FASH 290 Textiles for the Fashion Industry
FASH 319 Contemporary Fashion

Music
APPM 300-level Private Instruction: Principal and Secondary Performing Mediums
APPM 370 Large Ensembles (auditions required for some sections)

APPM 390 Small Ensembles (auditions required for all sections)	
MHIS 120 Introduction to Musical Styles	
MHIS 250/AFAM 250 Introduction to African-American Music	
MHIS 350/INTL 370/AFAM 350 Studies in the Music of the African Continent and Diaspora	
Photography and film	
PHTO 233 Elements of the Moving Image	
Theatre	
THEA 103 Stagecraft	
THEA 104 Costume Construction	
THEA 211-212 Introduction to Drama	
THEA 221 Introduction to Scene Design/ THEZ 221L Introduction to Scene Design Laboratory	
THEA 229 Introduction to Lighting Design	
THEA 303/AFAM 303 Black Theatre	

C. Advanced-level courses open to both arts and non-arts majors. Some require special permission/audition.

Dance/choreography	
DANC 221, 222 Tap Technique II	
DANC 319, 320 Video/Choreography Workshop	
DANC 343 Body Imagery	

7. Humanities and social sciences

Study in the humanities and social sciences is intended to make engineering students fully aware of cultural traditions as well as relationships in society. As a minimum, students should successfully complete one approved course in the humanities and one approved course in the social sciences. These courses should be selected to broaden the cultural, historical and artistic perspectives of engineering students, or otherwise to widen their interests and to continue their intellectual growth, keeping in mind that these courses are intended to serve personal development and not vocational needs.

Courses (1.5 credit minimum) will be selected from the following lists. (Other appropriate courses may be selected with the approval of an adviser and program chair.) Some of these courses also may satisfy the other general education requirements listed above.

Recommended courses in the humanities are:

Art history	
ARTH 103,104 Survey of Western Art	3, 3
ARTH 145,146 Survey of Asian Art	3, 3
ARTH 207 Introduction to Non-Western Art 3	

History	
HIST 101, 102 Survey of European History	3, 3
HIST 103, 104 Survey of American History	3, 3
HIST 105, 106 Survey of African History	3, 3
HIST 107, 108 Survey of East Asian Civilizations	3, 3

Interior design	
IDES 251, 252 History of Interior Environments	3, 3

Literature	
ENGL 201, 202 Western World Literature I, II	3, 3
ENGL 203, 204 British Literature I, II	3, 3
ENGL 205, 206 American Literature I, II	3, 3
ENGL 215 Readings in Literature	3
ENGL 216 Readings in Narrative	3
ENGL 236/WMNS 236 Women in Literature	3
ENGL 241 Shakespeare's Plays	3
ENGL 291 Topics in Literature	3

Music	
MHIS 105 Introduction to Writing Music	3
MHIS 201 Acoustics	3
MHIS 243 Music Appreciation	3
MHIS 250/AFAM 250 Introduction to African-American Music	3
MHIS 303 Piano Literature	2

Philosophy	
PHIL 104 Modern Western Philosophy	3
PHIL 211 History of Ethics	3
PHIL 212 Ethics and Applications	3
PHIL 213 Ethics and Health Care	3
PHIL 221 Critical Thinking	3

Religious studies	
RELS/INTL 311, 312 Religions of the World	3, 3
RELS 340/INTL 341 Global Ethics and the World's Religions	3

Theatre	
THEA 307 History of the Theatre	3

Recommended courses in the social sciences are:

Anthropology	
ANTH/INTL 103 Introduction to Anthropology	3

Economics	
ECON 210, 211 Principles of Economics	3, 3

Political science	
POLI 103 U.S. Government	3
POLI 201 Introduction to Politics	3

Psychology	
PSYC 101 Introduction to Psychology	4

Sociology	
SOCY 101 General Sociology	3

Student advising

Every student admitted to the School of Engineering is assigned a faculty adviser from his or her program of study. The faculty adviser assists the student in planning course

work, becoming familiar with university services, interpreting university rules and procedure, and defining career objectives.

While the faculty of the School of Engineering provide timely and accurate information and advice, the student is ultimately responsible for knowing and satisfying the requirements of his or her degree program. Students should be familiar with curriculum requirements, appropriate course sequences, prerequisites and academic regulations.

There are no "free" electives in the curricula of the School of Engineering. All courses taken by engineering students must be approved by an adviser.

Additionally, the Office of Student Services provides a variety of advising and assistance to all students. The Office of Student Services is located in Room 433 of the School of Engineering.

University Honors Program

The School of Engineering provides, through the University Honors Program, an opportunity for academically superior students to graduate with university honors. Engineering students who maintain a GPA of 3.5 or better and follow a program of study that includes completion of nine credits of honors modules, nine credits of honors courses — of which one must be from outside the major — and submission of an honors dossier prior to graduation may graduate with university honors. A complete description of the University Honors Program is provided in the appropriate chapter of this bulletin.

Policy for honors courses

Engineering and computer science students admitted to the University Honors Program derive the following benefits:

- Honors students register first and therefore have their choice of class selections and times.
- Students in the University Honors Program may substitute honors modules (1.5 credits each) for those courses listed in the general education requirements — allowing honors students to free up course credits for more challenging courses in the upper levels and in preparation for graduate and professional school.

Each semester, the director of the University Honors Program will review honors courses to be offered and recommend those considered to be suitable to meet the School of Engineering general education requirements to the School of Engineering Undergraduate Curriculum Committee for its consideration and approval. The list of those approved by the committee will, in turn, be forwarded to the faculty advisers for their use with the honors students.

The following engineering courses are designated honors for the purposes of meeting the University Honors Program's course requirements:

- Biomedical engineering – EGRB 403 (Honors) Tissue Engineering and EGRB 406 (Honors) Artificial Organs
- Chemical engineering – EGRC 325 (Honors) Bioengineering
- Electrical engineering – EGRE 364 (Honors) Microcomputers, EGRE 427 (Honors) Advanced Digital Design, EGRE 445 (Honors) Digital Signal Processing, EGRE 436 (Honors) Advanced Semiconductor Fabrication and EGRE 429 (Honors) VLSI Design
- Mechanical engineering – EGRM 420 (Honors) CAE Design and EGRM 303 (Honors) Thermal Systems Design
- Engineering courses – ENGR 402, ENGR 403, ENGR 410, ENGZ 402L, ENGZ 403L
- Students may participate in the Guaranteed Admissions Program, allowing highly qualified honors students a variety of options for gaining admission to many of the professional health science and graduate programs of the university, including engineering and computer science.
- Honors students may graduate with university honors, receive a gold medal and the designation of university honors on their diploma.

Transfer policies

Transfer students who plan to enroll in the undergraduate programs in the School of Engineering must meet the admission

requirements of the university, keeping in mind the following:

1. Calculation of the GPA for admittance into the School of Engineering is based on grades earned at all institutions attended.
2. Transfers require a minimum GPA of 3.0 (on a 4.0 scale) with no grades below "C." All courses of "C" or better will transfer except that mathematics, science, computer science and engineering courses must be equivalent to those offered by the School of Engineering.
3. With the exception of general education requirements, transfer of courses from all institutions is limited to courses required by the School of Engineering in the freshman and sophomore years.

The School of Engineering has articulation agreements with J. Sargeant Reynolds Community College, John Tyler Community College and Virginia Union University. The School of Engineering accepts transfer credits from regionally accredited colleges and universities.

Courses in engineering (ENGR)

ENGR 101 Introduction to Engineering

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: Admission to the School of Engineering or permission of instructor. Introduces basic circuits including resistors, diodes, transistors, digital gates and motors. Simple electromechanical systems are considered including motors, gears and wheels. The laboratory introduces fundamental circuit testing and measurement, and proper laboratory notebook writing; students are required to analyze, build and test a digitally controlled robot.

ENGR 102 Engineering Statics

Semester course; 3 lecture hours. 3 credits. Corequisite: MATH 200. The theory and application of engineering mechanics applied to the design and analysis of rigid structures. Equilibrium of two and three dimensional bodies. The study of forces and their effects. Applications to engineering systems.

ENGR 115 Computer Methods in Engineering

Semester course; 3 laboratory hours. 1 credit. This introductory computer laboratory course is designed to provide students with proficiency in computer applications of fundamental and practical importance to engineering practice and to prepare students for advanced computing instruction.

ENGR 291 Special Topics in Engineering

Semester course; variable 1-5 credits. Prerequisite: To be determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. See the Schedule of Classes for specific topics to be offered and prerequisites. Grade option: P/F or normal letter grading. Option will be established by the instructor.

ENGR 301 Fluid Mechanics

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: PHYS 207 and MATH 301 or permission of the instructor. Basic and applied fluid mechanics; fluid properties; application of Bernoulli and Navier-Stokes equations; macroscopic mass, momentum and energy balances; dimensional analysis; laminar and turbulent flow; boundary layer theory; friction factors in pipes and packed beds; drag coefficients; compressible flow; flow measurements; numerical simulation; applications to the operation and design of turbo machinery.

ENGR 302 Heat Transfer

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGR 301 or permission of the instructor. Basic and applied heat transfer; diffusion and rate concepts; evaporation; boiling and condensation; dispersion coefficients; stagnant film; falling film; porous membrane; packed bed; numerical simulation; applications to industrial processes. Lecture topics will include a review of fundamental concepts in thermodynamics.

ENGR 303 Junior Seminar

Semester course; 3 lecture hours. 3 credits. Prerequisite: Permission of instructor. This course provides students an opportunity to explore business and leadership topics. Topics include the fundamentals of product design and new product development, manufacturing and quality systems, finances and financial reports, ethics in the workplace, intellectual property, teamwork, leadership and communications. Students will be assigned selected readings, written compositions and oral presentations. This course prepares the student to participate in the Engineering Laboratory/Manufacturing Internship.

ENGR 305 Sensors/Measurements

Semester course; 3 lecture and 1 laboratory hour. 3 credits. Prerequisites: PHYS 208 and MATH 301 or permission of the instructor. Introduction to sensors and their utilization for measurement and control; sensor types: electro-mechanical, electro-optical, electro-chemical; applications in medicine, chemical manufacturing, mechanical control and optical inspection.

ENGR 315 Process and Systems Dynamics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 301. Undergraduate course covering the analysis of chemical, fluid, mechanical and electrical dynamic systems. Pedagogically, a single approach is taught that applies to any of the systems in any of these disciplines using conservation equations and constitutive relationships to build the systems of differential equations needed for the analysis. The mathematical structures of the types of differential equations typically generated in dynamic physical systems are reviewed and both analytical and numerical solution techniques are taught. Finally, the tools used to develop control components for systems in these areas are covered along with the mathematical tools (e.g., Laplace transforms) needed for their analysis.

ENGR 334 Introduction to Microelectronic Fabrication

Semester course; 3 lecture and 3 laboratory hours. 4 credits. This course gives an overview of the integrated circuit fabrication and testing process for a general audience. A wide variety of new terms, equipment and processes are presented. Fundamentals of photolithography, mask making, diffusion, oxidation, chemical vapor deposition and etching are covered. Laboratory work consists of safety training, facility operation, wafer cleaning, oxidation, photolithography, etching, diffusion, metal deposition and electrical testing. A complete metal gate PMOS circuit will be fabricated in the laboratory portion of the course.

ENGR 402-403 Senior Design Studio (Seminar)

Continuous course; 1 lecture hour. 1-1 credits. Prerequisites: Senior standing and participation in a senior design (capstone) project. This weekly seminar presents and discusses topics relevant to senior-level engineering students in support of the capstone project and upcoming graduation. A single course coordinator manages and administers the course and schedules the various faculty lectures and guest speakers. Topics include, but are not limited to, the following: proposal writing, project planning and management, scheduling resources and budgeting for technical projects, patents and intellectual property, quality systems (six sigma, ISO standards, statistical process control), entrepreneurship, creativity and innovation and professional registration.

ENGR 402L-403L Senior Design Studio (Laboratory/Project Time)

Continuous course; 6-6 laboratory hours. 2-2 credits. Prerequisite: Senior standing and participation in a senior design (capstone project). A minimum of six laboratory hours per week dedicated to the execution phase of the senior design (capstone) project. Tasks include: team meetings, brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects.

ENGR 410 Review of Internship

Semester course; 1 credit. Prerequisite: Chemical, electrical or mechanical engineering majors or research experience to satisfy the engineering internship. Students complete oral presentations and written reports summarizing the internship experience.

ENGR 411 Fundamentals of Engineering Exam Preparation

Semester course; 1 lecture hour. 1 credit. Prerequisites: Senior standing or permission of instructor. This course prepares students for taking the fundamentals of Engineering Exam. Passing the FE Exam is the first step to getting a Professional Engineering license. This course is not intended to teach the various subject matters, but to review the subject areas and help students prepare as well as possible for the examination.

ENGR 412 Advanced Engineering Mathematics

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 301 or equivalent. Advanced topics in engineering mathematics. Topics include partial differential equations, boundary value problems, infinite series, Fourier series, Sturm-Liouville theory, orthogonal functions and the theory of a function of a complex variable. Engineering applications include heat and mass transfer, oscillations in plates and membranes, buckling of columns under axial loads, traveling waves and electromagnetic fields.

ENGR 427 Robotics

Semester course; 3 lecture hours. 3 credits. Prerequisite: Senior standing in the School of Engineering or permission of the instructor. Introduction to the state-of-the-art and technology of robotics and its applications for productivity gain in industry.

ENGR 430 Process Modeling and Simulation

Semester course; 3 lecture hours. 3 credits. Prerequisite: Senior standing in chemical engineering. Process modeling and simulation are an integral part of process design and analysis. This course continues training in the derivation of steady-state and dynamic mass and energy balances. Emphasis is placed on the use of student-written and commercially available software to develop and analyze models for individual process units (a single reactor or distillation column), process modules (combination of a reactor, crystallizer, centrifuge and dryer) and entire plant flowsheets.

ENGR 454 Automatic Controls

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 335 or ENGR 305 or ENGR 315. This course covers the design and analysis of linear feedback systems. Emphasis is placed upon the student gaining mathematical modeling experience and performing sensitivity and stability analysis. The use of compensators to meet systems design specifications will be treated. Topics include: an overview and brief history of feedback control, dynamic models, dynamic response, basic properties of feedback, root-locus, frequency response and state space design methods. The laboratory will consist of modeling and control demonstrations and experiments single-input/single-output and multivariable systems, analysis and simulation using matlab/simulink and other control system analysis/design/implementation software.

ENGR 490 Engineering Seminar

Semester course; variable 1-3 credits. May be repeated with different content. Prerequisite: Permission of the instructor. A series of specialized topics in engineering that are of general interest but not covered by an existing course or program. Lectures will be presented in seminar format by speakers from business, industry, government and academia. Subjects will be multidisciplinary in nature. Grade option: P/F or normal letter grading. Option will be established by the instructor.

ENGR 491 Special Topics in Engineering

Semester course; variable 1-5 credits. Prerequisite: Determined by the instructor. Specialized topics in engineering designed to provide a topic not covered by an existing course or program. General engineering or multidisciplinary. May be repeated with different content. See the Schedule of Classes for specific topics to be offered and prerequisites. Grade option: P/F or normal letter grading. Option will be established by the instructor.

ENGR 492 Independent Study in Engineering

Semester course; variable 1-5 credits. May be repeated with different content. Prerequisite: Permission of the instructor. Students must submit a written proposal to be approved by the supervising instructor prior to registration. Investigation of specialized engineering problems that are multidisciplinary or of general interest through literature search, mathematical analysis, computer simulation and/or laboratory experimentation. Written and oral progress reports as well as a final report and presentation are required. Grade option: P/F or normal letter grading. Option will be established by the instructor.

Biomedical Engineering Department

Gerald E. Miller

Professor and Department Chair (1996)
B.S. 1971 Pennsylvania State University
M.S. 1975 Pennsylvania State University
Ph.D. 1978 Pennsylvania State University

Biomedical engineering applies engineering expertise to analyze and solve problems in biology and medicine in order to enhance health care. Students involved in biomedical engineering learn to work with living systems and to apply advanced technology to the complex problems of medical care. Biomedical engineers work with other health care professionals including physicians, nurses, therapists and technicians toward improvements in diagnostic, therapeutic and health delivery systems. Biomedical engineers may be involved with designing medical instruments and devices, developing medical software, tissue and cellular engineering, developing new procedures or conducting state-of-the-art research needed to solve clinical problems.

There are numerous areas of specialization and course work within biomedical engineering. These include (1) bioinstrumentation: the application of electronics and measurement techniques to develop devices used in the diagnosis and treatment of disease, including heart monitors, intensive care equipment, cardiac pacemakers and many other electronic devices; (2) biomaterials: the development of artificial and living materials used for implantation in the human body, including materials used for artificial heart valves, kidney dialysis cartridges, artificial arteries, artificial hips and artificial knees; (3) biomechanics: the study of motion, forces and deformations in the human body, including the study of blood flow and arterial disease, forces associated with broken bones and their associated repair mechanisms, mechanisms of blunt trauma including head injuries, orthopedic systems, and the forces and movement associated with human joints such as the knee and hip; (4) tissue and cellular engineering: the application of biochemistry, biophysics and biotechnology toward the development of new cellular and tissue systems and an understanding of disease processes, including development of artificial skin and organs, cell adherence to artificial materials to prevent rejection by the body, and the

development of new genetic cellular systems to treat diseases; (5) medical imaging: the development of devices and systems to image the human body to diagnose diseases, including the development and data processing of the CAT scan, MRI (magnetic resonance imaging), medical ultrasound, X-ray and PET (positron emission tomography); (6) rehabilitation engineering: the development of devices and prosthetics to enhance the capabilities of disabled individuals, including design of wheelchairs, walkers, artificial legs and arms, enhanced communication aids and educational tools for the handicapped.

A unique aspect to biomedical engineering is the practicum series, EGRB 101 and 301 which involves biomedical engineering students participating in medical rounds at VCU Health System's MCV Hospitals, in medical research laboratories throughout the MCV Campus and the Virginia BioTechnology Research Park, and in medical seminars, case studies and medical laboratories. This unique opportunity is the only one of its kind in the nation and involves the cooperation of VCU Health System, one of the nation's largest and most prestigious medical centers.

Freshman year in biomedical engineering

Fall semester	credits
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
MATH 200 Calculus with Analytical Geometry	4
BIOL 152 Introduction to Biological Science II	3
ENGR 101 Introduction to Engineering	4
EGRB 101 Biomedical Engineering Practicum I	2
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Spring semester

CHEM 102 General Chemistry	3
CHEZ/FRSZ 102L General Chemistry Laboratory	1
MATH 201 Calculus with Analytical Geometry	4
ENGR 102 Engineering Statics	3
PHYS 207 University Physics I	5
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Sophomore year in biomedical engineering

Fall semester	credits
MATH 301 Differential Equations	3
EGRE 206 Electric Circuits	4
PHIS 309 Quantitative Physiology	4

PHYS 208 University Physics II	5
ENGL 101 Writing and Rhetoric Workshop I	3
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Spring semester

MATH 310 Linear Algebra	3
PHIL 213 Ethics and Health Care	3
PHIS 310 Quantitative Physiology	4
ENGL 200 Writing and Rhetoric Workshop II	3
EGRM 202 Mechanics of Deformables	3
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Junior year in biomedical engineering

Fall semester	credits
EGRB 307 Biomedical Instrumentation	4
EGRB 301 Biomedical Engineering Practicum III	2
EGRB 427 Biomaterials	3
Technical elective	3
General education elective	3
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Spring semester

EGRB 308 Biomedical Signal Processing	4
EGRB 303 Biotransport Processes	3
EGRB 310 Biomechanics	4
Technical elective	3
General education elective	3
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Senior year in biomedical engineering

Fall semester	credits
EGRB 401 Biomedical Engineering Senior Design Studio	3
Technical elective	3
Technical elective	3
STAT 541 Statistics for Engineers and Scientists	3
General education elective	3
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	15

Spring semester

EGRB 402 Biomedical Engineering Senior Design Studio	3
Technical elective	3
Technical elective	3
General education elective	3
General education elective	3
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Total minimum requirement 130

Biomedical engineering students must select all technical electives from one of the four technical elective tracks.

Technical elective tracks

Pre-medical track

BIOL 151 Introduction to Biological Science I	3
BIOZ 151L Introduction to Biological Science Laboratory I	1
BIOZ 152L Introduction to Biological Science Laboratory II	1
BIOL Elective	4
CHEM 301 Organic Chemistry I	3
CHEZ 301L Organic Chemistry Laboratory I	2
CHEM 302 Organic Chemistry II	3
CHEZ 302L Organic Chemistry Laboratory II	2
EGRB 403 Tissue Engineering	3

Biomechanics and biomaterials track

BIOL 218 Cell Biology	3
EGRB 405 Finite Element Analysis in Solid Mechanics	3
EGRB 403 Tissue Engineering	3
EGRB 406 Artificial Organs	3
EGRM 420 CAE Design	3
EGRM 421 CAE Analysis	3
EGRM 428 Polymer Processing	3
EGRM 436 Engineering Materials	3
EGRM 437 Principles of Polymer Engineering	3

Rehabilitation engineering track

EGRB 420 Rehabilitation Engineering	3
EGRB 421 Human Factors Engineering	3
EGRB 405 Finite Element Analysis in Solid Mechanics	3
EGRM 420 CAE Design	3
EGRM 421 CAE Analysis	3
HPEX 332 Motor Learning and Performance	3
HPEX 372 Survey of Kinesiology and Physiology of Exercise	3
HPEX 373 Structural Kinesiology	3
HPEX 374 Biomechanics	3

Instrumentation and electronics track

EGRB 407 Physical Principles of Biomedical Imaging	3
EGRB 408 Advanced Biomedical Signal Processing	3
EGRB 409 Microcomputer Applications in Biomedical Engineering	3
EGRE 224 Introduction to Microelectronics	4
EGRE 254 Digital Logic Design	3
EGRE 303 Electronic Devices	3
EGRE 307 Integrated Circuits	4
EGRE 309 Electromagnetic Fields	3
EGRE 310 Microwave and Photonic Engineering	3
EGRE 335 Signals and Systems I	3
EGRE 336 Introduction to Communication Systems	3
EGRE 364 Microcomputer Systems	4
EGRE 426 Computer Organization and Design	3
EGRE 427 Advanced Digital Design	3
EGRE 445 Digital Signal Processing	3
EGRE 455 Control Systems Design	3
ENGR 454 Automatic Control	3

Courses in biomedical engineering (EGRB)

EGRB 101 Biomedical Engineering Practicum I

Semester course; 2 lecture hour. 2 credits. Prerequisites: Registration in Biomedical Engineering Program and permission of course coordinator. This course involves the introduction of clinical procedures and biomedical devices and technology to biomedical engineering freshmen. Students will tour medical facilities, clinics and hospitals and will participate in medical seminars, workshops and medical rounds. Students will rotate among various programs and facilities including orthopaedics, cardiology, neurology, surgery, otolaryngology, emergency medicine, pharmacy, dentistry, nursing, oncology, physical medicine, ophthalmology, pediatrics and internal medicine.

EGRB 301 Biomedical Engineering Practicum II

Continuous course; 2 lecture hours. 2 credits. Prerequisites: Registration in Biomedical Engineering Program as a junior or higher classification and permission of course coordinator. This course involves the introduction of biomedical and clinical issues relevant to research and design issues including economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political topics. Also included are topics related to protection of human subjects. Students will tour relevant medical research facilities, clinics and hospitals, and will participate in medical seminars, workshops and medical research projects pertinent to the topics noted above.

EGRB 303 Biotransport Processes

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIS 309 and 310 (or equivalents), EGRB 310, PHYS 208, CHEM 102. This course involves the study of mass, momentum and heat transfer within the human body, between the human body and the environment, and in the design of devices and systems that are involved with transport processes in a medical and clinical setting. The underlying principles of mass, momentum and energy transfer will be addressed followed by a study of such processes that are ongoing in the human body. The design of biomedical devices and systems that involve transport processes also will be studied. Examples include cardiovascular blood flow, transport across cell membranes, respiration and thermoregulation.

EGRB 307 Biomedical Instrumentation

Continuous course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: Junior standing in engineering; at least two courses in electrical circuits. A study of the physical principles, design and clinical uses of biomedical instrumentation. Analysis and design of low frequency electronic circuits, which are most frequently used in biomedical instruments, will be conducted. Analysis of biosensors, biopotential electrodes, the measurements of biopotential signals including electrocardiogram (ECG), electroencephalogram (EEG) and electromyogram (EMG), blood pressure, blood flow and respiratory system will be conducted. Laboratory work on basic biomedical electronics and instrumentation will be performed.

EGRB 308 Biomedical Signaling Processing

Continuous course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: Calculus, differential equations, PHIS 309 and 310. This course explores the basic theory and application of digital signal processing techniques related to the acquisition and processing of biomedical and physiological signals.

EGRB 310 Biomechanics

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRM 202 and MATH 301. This first course in biomechanics will analyze the forces, stresses and strains in the human body during normal function. Emphasis will be placed on certain parts of the human body including hard (bone) and soft (cartilage, ligaments, tendons) tissues. A knowledge of statics and the mechanics of deformable bodies is required as is a knowledge of calculus and differential equations. Exposure to human anatomy and physiology also is necessary, however, more in-depth anatomic study of the different parts of the body will be part of the material covered.

EGRB 401-402 Biomedical Engineering Senior Design Studio

Continuous course; 9 laboratory hours. 3-3 credits. Prerequisites: Senior standing in the Biomedical Engineering Program; EGRB 301, 307 and 308. A minimum of nine laboratory hours per week is dedicated to the design, development and execution of the senior design (capstone) project for biomedical engineering under the direction of a faculty research adviser in biomedical engineering or an acceptable substitute as determined by the course coordinator. Tasks include team meetings (for team projects), brainstorming, sponsor advising, designing, fabrications, assembling, reviewing, studying, researching, testing and validating projects. Monthly progress reports are due to the research adviser and course coordinator. A final project report and presentation are due at the conclusion of the two-semester design process.

EGRB 403 Tissue Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in engineering, at least one course in physiology or anatomy. Study of the design, development and clinical application of tissue engineered components for use in the human body. Analysis of biology, chemistry, material science, engineering, immunology and transplantation as pertains to various tissue engineered components including blood vessels, bone, cartilage, pancreas, liver and skin.

EGRB 405 Finite Element Analysis in Solid Mechanics

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRB 310 and MATH 301. Finite element analysis as presented in this course is a numerical procedure for solving continuum mechanics problems that cannot be described by closed-form mathematical solutions. Emphasis will be placed on understanding the theoretical basis for the method, using a commercial software program, and understanding the volume of information that can be generated. Applications to both one- and two-dimensional problems in solid mechanics and biomechanics will be explored.

EGRB 406 Artificial Organs

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIS 309 and 310 (or equivalents), EGRB 303, EGRB 310 and EGRB 307. This course explores the design, operating principles and practices regarding artificial organs and their use in the human body. Analysis of dialysis systems for kidney replacement, artificial hearts and heart assist devices, cardiac pacemakers, sensory organ assist and replacement devices, and artificial liver and pancreas devices. Design aspects, legal ramifications, regulatory issues and clinical implantation issues will be addressed.

EGRB 407 Physical Principles of Medical Imaging

Semester course; 3 lecture hours. 3 credits. Prerequisites: Junior standing in engineering, at least two courses in electrical circuits. A study of the physical principles and basic clinical uses of medical imaging. Analysis of radiation and interaction of radiation, generation and control of X-rays, X-ray diagnostic methods, X-ray computed tomography (CT), magnetic resonance imaging (MRI) and ultrasonic imaging will be conducted. Basic principle of radionuclide imaging also will be introduced. A knowledge of basic electrical circuits is a prerequisite as is a knowledge of wave propagation, calculus and differential equations.

EGRB 408 Advanced Biomedical Signal Processing

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRB 308. This course will briefly review the basic theory of discrete-time signal processing techniques in biomedical data processing. Advanced signal processing techniques including adaptive signal processing, wavelets, spectral estimation and multirate signal processing will be employed. Specific examples utilizing electrocardiogram (ECG) and other biological signals are provided. Topics covered are alternate phenomenon in biological systems, late potential in ECG, intrapotential in ECG and coherence analysis.

EGRB 409 Microcomputer Applications in Biomedical Engineering

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRB 307. Covers microcomputer applications (hardware and software) as applied to biomedical science and biomedical engineering. Basic hardware components of a microcomputer are discussed with particular reference to configurations needed for analyzing biomedical events. Software applications including data encoding, data storage, graphical interfaces and real-time processing are explored for analysis of physiological and biomedical signals. Students will develop algorithms using LabView and MatLab to solve problems in biomedical engineering in the laboratories.

EGRB 420 Rehabilitation Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIS 309 and 310 (or equivalents), EGRE 206 (or equivalent), EGRB 310. This course explores the principles and practices regarding rehabilitation engineering and the interaction of biomedical engineering with health care delivery to disabled individuals. Discussions of approaches to diagnosis and treatment of disorders involving motor and cognitive function will be included as will an analysis of the design of devices and systems to aid the disabled. Chronic disabilities such as cerebral palsy, muscular dystrophy and spinal cord disorders will be used as examples as will acute disabilities resulting from traumatic injuries.

EGRB 421 Human Factors Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHIS 309 and 310 (or equivalents), and EGRB 310. This course explores the principles and practices regarding ergonomics and human factors engineering and the interaction of biomedical engineering with human function. Analysis of the functions of the human body regarding motion, sensory mechanisms, cognition and interaction with the environment will be included. Interactions of the human body with technology, workplaces, equipment and computers will be examined. Design of workplaces for optimal human performance will be discussed. Analysis of the design and arrangement of controls and displays will be covered.

EGRB 427 Biomaterials

Semester course; 3 lecture hours. 3 credits. Prerequisites: Junior standing in engineering; at least one course in physiology or anatomy. Analysis of physical, chemical, thermal and physiological response factors associated with materials and implant devices used in the human body. Study of the properties of biomedical materials used as implants, prostheses, orthoses and as medical devices in contact with the human body.

Chemical Engineering Department

L. Thomas Overby

Interim Department Chair (1981)

B.S. 1961 Virginia Polytechnic Institute and State University

M.Eng. 1966 Pennsylvania State

Ph.D. 1974 Virginia Polytechnic Institute and State University

Chemical engineering is the most diverse of the engineering disciplines. Chemical engineers find employment in the manufacturing of chemicals, metals, plastics, ceramics, foodstuffs, petrochemicals, fertilizers, pharmaceuticals and every material one can think of. They design and build the reactors used to make these materials and invent the processes used to separate and purify the products. They develop waste disposal processes and have a leading role in today's environmental protection research. Chemical engineers are involved in all facets of biotechnology, from research on artificial kidneys to the design and control of biofermentation reactors. Chemical engineers devised the processes needed to produce the special plastics used for artificial joints and developed the membranes used for skin grafts on severely burned patients. They are doing research and development on recombinant DNA technology and designing habitats for NASA space stations. Chemical engineers help design and build nuclear power plants. They helped develop the microlithography processes used to make computer chips and built the plants where plastics used for compact discs are produced.

The ability to work in such diverse fields requires unusually extensive cross-disciplinary training. The chemical engineering degree requires students to develop proficiency in science, mathematics and biological science as adjuncts to mastering chemical engineering course material on mass and energy balances, unit operations, transport phenomena, thermodynamics, reaction engineering, process control, and process design and economics. Additionally,

chemical engineering majors are expected to develop considerable written and verbal expertise so additional emphasis is placed on learning composition and rhetoric skills.

Freshman year in chemical engineering

Fall semester	credits
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
MATH 200 Calculus with Analytic Geometry	4
ENGL 101 Writing and Rhetoric Workshop I	3
ENGR 101 Introduction to Engineering	4
ENGR 115 Computer Methods in Engineering	1
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Spring semester

CHEM 102 General Chemistry	3
CHEZ/FRSZ 102L General Chemistry Laboratory	1
MATH 201 Calculus with Analytic Geometry	4
PHYS 207 University Physics I	5
EGRC 201 Material Balances	3
	<hr/> 16

Sophomore year in chemical engineering

Fall semester	credits
CHEM 301 Organic Chemistry I	3
CHEZ 301L Organic Chemistry Laboratory I	2
EGRC 202 Energy Balances	3
MATH 301 Differential Equations	3
PHYS 208 University Physics II	5
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Spring semester

CHEM 302 Organic Chemistry II	3
CHEZ 302L Organic Chemistry Laboratory II	2
EGRC 204 Engineering Thermodynamics	3
ENGL 200 Writing and Rhetoric Workshop II	3
BIOL 101, 102, 103 or 151*	3
ECON 205 The Economics of Product Development and Markets*	3
	<hr/> 17

Junior year in chemical engineering

Fall semester	credits
EGRC 301 Fluid Dynamics and Heat Transfer	3
ENGR 305 Sensors/Measurements	3
EGRC 205 Thermodynamics of Phase Equilibria and Chemical Reactions	3
EGRC 320 Instrumentation Laboratory	2
Technical elective	3
General education requirement	3
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Spring semester

EGRC 302 Mass Transfer and Unit Operations	3
EGRC 312 Chemical Reaction Engineering	3
EGRC 409 Chemical Process Control	3
Technical elective	3
Technical elective	3
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Junior/senior summer internship**Senior year in chemical engineering**

Fall semester	credits
ENGR 410 Review of Internship	1
ENGR 402 Senior Design Studio I	1
ENGZ 402L Senior Design Studio Laboratory I	2
EGRC 440 Unit Operations Laboratory	2
STAT 541 Applied Statistics	3
Technical elective	3
Technical elective	3
General education requirement	3
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Spring semester

ENGR 403 Senior Design Studio II	1
ENGZ 403L Senior Design Studio II Laboratory	2
Technical Elective	3
Open elective	3
General education requirement	3
General education requirement	3
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Total minimum requirement 130

Technical electives: Three electives must be 300+ level engineering courses; the remaining technical electives may be chosen from 300+ level courses from engineering, math, sciences or business. Some 200+ level biology courses also are acceptable. Suggested courses are listed below. Students may take any course of interest to fulfill the open elective. All electives must be selected with the agreement of the student's academic adviser.

Total credits: All chemical engineering majors must complete a minimum of 130 credit hours in order to graduate. A grade of "C" or better is required in all School of Engineering courses. Seniors may elect a concentration in chemical process engineering, biotechnology, materials/molecular engineering or multidisciplinary studies (graduate school preparation) by choosing appropriate technical electives.

* Also satisfies a general education requirement.

Technical electives

Some courses may have prerequisites.

Chemical engineering

CHEM 303 Physical Chemistry
 CHEM 580 Mechanical Properties of Plastics and Polymers
 EGRC 306 Industrial Applications of Inorganic Chemistry
 EGRC 325 Bioengineering
 EGRC 350 Research in Chemical Engineering
 EGRC 405 Process Synthesis
 EGRC 428 Introduction to Polymer Science and Engineering
 EGRC 549 Process Biotechnology
 ENGR 412 Advanced Engineering Mathematics
 ENGR 430 Process Simulation
 ENGR 505 Characterization of Materials
 ENGR 543 Advanced Reaction Engineering

Biosciences and biotechnology

BIOC 503 Biochemistry, Cell and Molecular Biology
 BIOC 504 Biochemistry, Cell and Molecular Biology
 BIOC 505, 506 Experimental Biochemistry
 BIOL 151, 152 Introduction to Biological Sciences
 BIOL 218 Cell Biology
 CHEM 310 Medicinal Chemistry and Drug Design
 CHEM 327 Biochemistry
 CHEM 404 Advanced Topics in Biochemistry

Biomedical engineering

BIOL/PHIS 206 Human Physiology
 EGRB 307 Biomedical Instrumentation
 EGRB 310 Biomechanics
 EGRB 406 Artificial Organs
 EGRB 427 Biomaterials

Manufacturing

EGRM 425 Introduction to Manufacturing Systems
 EGRM 426 Manufacturing Processes

Mathematics

MATH 307 Multivariable Calculus
 MATH 310 Linear Algebra
 MATH 327 Mathematical Modeling
 MATH 437 Applied Partial Differential Equations
 MATH 515 Numerical Analysis I
 MATH 516 Numerical Analysis II

Polymer science and materials engineering

BIOC 602 Physical Properties of Macromolecules
 CHEM 550 Introduction to Polymer Chemistry
 CHEM 580 Mechanical Properties of Plastics and Polymers
 CHEM 691 Topics in Chemistry
 EGRM 428 Polymer Processing

In addition, any ENGR 492 Special Topics course taught by faculty from the School of Engineering can be used as a technical elective by agreement with the student's academic adviser.

Pre-medicine and pre-dentistry

BIOL 151 and 152 Introduction to Biological Science I and II

BIOZ 151L and 152L Introduction to Biological Science Laboratory I and II
 BIOL/PHIS 206 Human Physiology
 BIOL 218 Cell Biology

Chemical engineering policy on technical electives

The chemical engineering program allows students to substitute technical or business courses for two of the three required technical electives as an aid to fulfilling the requirements for a technical minor or second technical major, a business minor or concurrent business major, or as a pre-medicine or pre-pharmacy preparation. Thus, all chemical engineering majors are required to complete three technical electives, one of which must be from the EGRC technical electives list. Substitutions for the other two technical electives require approval of the student's academic adviser and program chair. Completion of a minor or concurrent major usually requires the student to complete more than 130 credit hours in order to fulfill both the requirements for the baccalaureate degree in chemical engineering and the requirements of a minor or concurrent major option.

Minor in chemical engineering

The minor in chemical engineering consists of 19 credits and must include completion of these courses: EGRC 201, EGRC 204, EGRC 205, EGRC 301, EGRC 302 and EGRC 312.

Courses in chemical engineering (EGRC)**EGRC 201 Chemical Engineering Fundamentals I: Material Balances**

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGR 115, CHEM 101 or equivalents. The first of two introductory chemical engineering courses. EGRC 201 covers material balances on steady-state chemical processes.

EGRC 202 Chemical Engineering Fundamentals II: Energy Balances

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 115, EGRC 201, CHEM 102 or equivalents. The second of two introductory chemical engineering courses. EGRC 202 covers energy balances on steady-state chemical processes, computer-aided balance calculations and balances on transient processes.

EGRC 204 Engineering Thermodynamics

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 201 and MATH 301. First, second and third laws of thermodynamics, volumetric properties of pure fluids, heat capacities of solids, liquids and gases, heat

of reaction, heat of formation, heat of combustion, heat effects in industrial reactions, temperature scales, entropy and irreversible processes, thermodynamics of flow processes, refrigeration and liquefaction, Carnot cycle, engines and work, thermodynamic analysis of steady-flow processes and power cycles.

EGRC 205 Thermodynamics of Phase Equilibria and Chemical Reactions

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 204. Continuation of EGRC 204. Thermodynamic properties of fluids and mixtures, partial molar quantities, phase equilibria, activity coefficients and correlations, equations-of-state, chemical reaction equilibria for liquid, vapor and multiphase reactions, and the use of equations-of-state and activity/fugacity correlations to obtain the thermodynamic functions required for the calculation of chemical reaction equilibrium constants.

EGRC 301 Fluid Dynamics and Heat Transfer

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 201 and EGRC 204. Basic concepts of momentum and heat transfer as applied to chemical engineering. Topics include fluid statics, flow of compressible and incompressible fluids, flow past immersed bodies, transport and metering of fluids, heat transfer by conduction, convection and radiation, and heat flow with and without phase changes.

EGRC 302 Mass Transfer and Unit Operations

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 204, EGRC 301. Basic concepts of mass transfer as applied to chemical engineering. Topics include a review of staged equilibria, diffusion, gas absorption, liquid-liquid extraction and mass transport limitations in chemical reactions. The course concludes with an integrated view of momentum, heat and mass transport in unit operations.

EGRC 306/CHEM 306 Industrial Applications of Inorganic Chemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: Chemical engineering students: EGRC 201, EGRC 205 or permission of the instructor; chemistry students: CHEM 302 and CHEZ 302L. A study and analysis of the most important industrial applications of inorganic chemistry, with emphasis on structure/properties correlation, material and energy balances, availability and logistics of starting materials, economic impact and environmental effects.

EGRC 312 Chemical Reaction Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRC 201, EGRC 205; EGRC 302 is to be taken concurrently. Introduces the student to the analysis of reactors via coupling of empirical reaction rates and thermodynamic constraints with reactor material and energy balances. The behavior of the ideal reactor types (batch, CSTR and PFR) is emphasized with attention given to departure from these ideals by real systems.

EGRC 320 Instrumentation Laboratory

Semester course; 6 laboratory hours. 2 credits. Prerequisites: EGRC 202, EGRC 204 and CHEM 302. This laboratory introduces students to a variety of measurement instruments used in modern chemical engineering laboratories and process plants. Detailed laboratory reports are required for each of the demanding experiments undertaken by the students.

EGRC 325 Bioengineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: BIOL 101, 102, 103 or 151 and

EGRC 201. An introductory and survey level course required for all chemical engineering students. This course introduces concepts and principles of chemical engineering to problems and issues in the life sciences, biotechnology and medicine. Students apply heat and mass transfer concepts, separations and controls to topics that include clinical diagnostics, bioanalytical instrumentation, biosensors and biochips, bioprocess engineering including fermentation, biochemical pathway engineering, protein folding and aggregation, bioreactors and tissue engineering.

EGRC 350 Research in Chemical Engineering

Semester course; up to six credits. Undergraduate research under the supervision of a faculty member. Specific topics vary depending on the interests of the student and the adviser. Registration requires approval of the student's academic adviser and research adviser.

EGRC 405 Process Synthesis

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 202 and EGRC 205. Students synthesize flowsheets for existing and newly proposed chemical and biochemical products. Quantitative tools learned in earlier courses are used to examine the technical and economic feasibility of the flowsheets. Written bi-weekly status reports are required from each student and each student completes a process synthesis and analysis as a semester project.

EGRC 409 Chemical Process Control

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 205, EGRC 302 and EGRC 312. Covers process control as applied to chemical engineering with many practical examples. Topics include time and frequency domain analysis, multivariable processes and applications to chemical and biochemical production and processing.

EGRC 415 Special Topics in Chemical Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisite: Junior or senior standing in chemical engineering. Opportunities frequently arise where VCU faculty, adjuncts and/or visiting faculty wish to offer a course that draws on a particular area of expertise with broad appeal to our undergraduates. This course is reserved for those situations and offers an in-depth treatment of a selected area of contemporary interest in chemical engineering. The topic for a given course will vary depending on interest. Examples of topics that might be offered include colloid and surface science, biotechnology, diffusion in polymers, numerical analysis, supercritical fluids, microtechnology, process safety, materials synthesis and processing, polymer processing and others. Students should discuss selection of this course with their adviser prior to registration.

EGRC 428 Introduction to Polymer Science and Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRC 301 and CHEM/EGRC 322 or equivalents. This course offers an introduction to the chemistry, physical properties and processing of polymers. Topics include step and chain polymerization, chemical reactions on polymers, structure/property relationships, mechanical properties of plastics and elastomers, and processing techniques.

EGRC 440 Unit Operations Laboratory

Semester course; 6 laboratory hours. 2 credits. Prerequisites: EGRC 205, EGRC 301, EGRC 302 and EGRC 312. Students carry out experiments with reactors, heat exchangers, fluid flow networks, mixers, crystallizers, filters, dryers and other unit operations.

Detailed laboratory reports are required for each of the demanding experiments undertaken by the students.

Electrical and Computer Engineering Department

Ashok Iyer

Professor and Department Chair (2000)
B.E. 1978 Bangalore University India
M.S. 1980 Texas Tech University
Ph.D. 1982 Texas Tech University

The profession of electrical engineering touches all aspects of our lives in that electrical engineers design and fabricate devices and systems critical in applications such as computing, communications, health care, manufacturing and automation, power generation and utilization, transportation and entertainment. An element very important to these and many other applications is the microelectronic device or system.

In the subarea of microelectronics, electrical engineers design and fabricate electronic materials such as semiconductors, conductors and superconductors used in the manufacture of electronic devices. As a natural progression, electrical engineers design and fabricate electronic devices such as transistors, which control or modulate the flow of energy; sensors of light, mechanical force, chemicals, etc.; electromagnetic radiation sources such as lasers, light emitting diodes and microwave power sources. Following this progression, we find electrical engineers designing and fabricating integrated circuits such as microprocessors and memory elements; flat panel displays, etc., which are found in applications ranging from supercomputers to watches, clocks and toys. Further in this progression we find electrical engineers designing and fabricating today's and tomorrow's computers.

Computer systems and Application Specific Integrated Circuits, ASICs, are the elements which enable the existence of today's communication systems such as the Internet, satellite systems, telemedicine, wired and wireless (cellular) telephones, along with standard and high definition television. In addition, they, along with sensors, microwave power sources and actuators, permit our present and future automated manufacturing lines, air and traffic control systems, and automotive safety and traffic control through collision avoidance radar systems, antilocking brake systems (ABS),

air bag actuators, automatic traffic routing and the "smart highway" of the future.

Electrical engineers play an ever increasing role in the design and building of major facets of today's and tomorrow's health care systems and medical research through the application of microelectronic instrumentation and diagnostic tools such as MRI and CATSCAN systems. The field of electrical engineering truly permeates every facet of our lives and thus provides excellent employment opportunities to the general practitioner or the specialist in over 35 different specialties.

The curricula of the Electrical and Computer Engineering Department provide a strong foundation in the fundamentals of the profession including engineering problem solving, breadth in the major facets of the profession, and the opportunity to specialize in today's critical areas of computer engineering, communication systems and microelectronics. Graduates will be well prepared for constant technological change and growth through lifelong learning.

Electrical engineering

Freshman year in electrical engineering

See below for computer engineering track.

Fall semester	credits
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
MATH 200 Calculus I	4
ENGL 101 Writing and Rhetoric Workshop I	3
ENGR 101 Introduction to Engineering	4
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	15

Spring semester

EGRE 150 Introduction to Electrical Engineering	3
MATH 201 Calculus with Analytic Geometry	4
PHYS 207 University Physics I	5
ENGR 115 Computer Methods in Engineering	1
General education elective	3
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	16

Sophomore year in electrical engineering

Fall semester	credits
PHYS 208 University Physics II	5
MATH 301 Differential Equations	3
EGRE 206 Electric Circuits	4

School of Engineering

CMSC 245 Introduction to Programming Using C++	3
General education elective	3
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	18

Spring semester

EGRE 224 Introduction to Microelectronics	4
EGRE 254 Digital Logic Design	3
EGRE 335 Signals and Systems I	4
ENGL 200 Writing and Rhetoric Workshop II	3
MATH 307 Multivariate Calculus	3
	<hr/>
	17

Junior year in electrical engineering

Fall semester	credits
EGRE 307 Integrated Circuits	4
EGRE 310 Microwave and Photonic Engineering	3
EGRE 337 Signals and Systems II	3
EGRE 364 Microcomputer Systems	4
General education elective ⁺	3
	<hr/>
	17

Spring semester

EGRE 303 Electronic Devices	3
EGRE 336 Introduction to Communication Systems	3
Technical elective*	3
Technical elective*	3
General education elective ⁺	3
	<hr/>
	15

Summer between junior and senior years

The summer between the junior and senior years is devoted to either a full-time university, industrial manufacturing floor, or industrial research laboratory internship. This summer experience is intended to be intense and to have a major component of "hands-on" practice of engineering which will bring the life of "real-world" engineering practice to the classroom.

Senior year in electrical engineering

Fall semester	credits
ENGR 402 Senior Design Studio I	1
ENGR 410 Review of Internship	1
General education elective	3
SPCH 321 Speech for Business and the Professions or MGMT 325 Oral Communications	3
Technical elective*	3
Technical elective*	3
Technical elective*	3
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	17

Spring semester

ENGR 403 Senior Design Studio II	1
Technical elective*	4
Technical elective*	4
General education elective	3

General education elective	3
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	15
Total credits	130

⁺ Students should consider ECON 205 as a general education elective before their internship.

* Technical electives (23 credits): the program requires a total of 23 credits of technical electives that must include four credits of a capstone project.

Capstone project (four credits): the capstone project requirement can be satisfied by successfully completing one of the following courses:

- EGRE 427 Advanced Digital Design
- EGRE 436 Advanced Semiconductor Fabrication
- ENGZ 402L and ENGZ 403L. Students choosing this option must have a project and project adviser (any electrical engineering faculty member) chosen by the first week of the fall semester. Of the remaining 19 credits of technical electives existing in the junior and senior year, each student must choose courses such that the following criteria are met:
 - Please refer to the approved department elective list for eligible technical elective courses.
 - At least 12 credits must come from the Electrical Engineering Program (EGRE courses).
 - At least six credits must come from one concentration area in electrical engineering.
 - At least one course in the concentration area within electrical engineering must have an associated laboratory.
 - At least three credits must come from a second concentration area within electrical engineering.
 - At least three credits must come from outside the Electrical Engineering Program (non-EGRE courses).

Electrical engineering concentrations

Communication systems

EGRE 444 Communication Systems	3
EGRE 445 Digital Signal Processing	3
EGRB 408 Advanced Biomedical Signal Processing	3

Computer engineering

EGRE 426 Computer Organization and Design	3
EGRE 427 Advanced Digital Design	4
EGRE 429 VLSI Design	4

Controls engineering

ENGR 315 Process and Systems Dynamics	3
ENGR 427 Robotics	3
ENGR 454 Automatic Controls	4
EGRE 455 Control Systems Design	3
EGRM 410 Engineering Synthesis Laboratory	3

Microelectronics

ENGR 334 Introduction to Microelectronic Fabrication	4
EGRE 309 Electromagnetic Fields	3

EGRE 435 Semiconductor Processes	4
EGRE 436 Advanced Semiconductor Fabrication	4

Computer engineering

Freshman year in computer engineering

Fall semester	credits
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
MATH 200 Calculus with Analytical Geometry	4
ENGR 101 Introduction to Engineering	4
ENGL 101 Writing and Rhetoric Workshop I	3
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	15

Spring semester

EGRE 150 Introduction to Electrical Engineering	3
ENGR 115 Computer Methods in Engineering	1
PHYS 207 University Physics I	5
MATH 201 Calculus with Analytic Geometry	4
General education elective	3
	<hr/>
	16

Sophomore year in computer engineering

Fall semester	credits
PHYS 208 University Physics II	5
MATH 301 Differential Equations	3
EGRE 206 Electric Circuits	4
CMSC 245 Introduction to Programming Using C++	3
ENGL 200 Writing and Rhetoric Workshop II	3
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	18

Spring semester

EGRE 254 Digital Logic Design	3
EGRE 224 Introduction to Microelectronics	4
EGRE 335 Signals and Systems I	4
CMSC 246 Advanced Programming Using C++	3
MATH 211 Mathematical Structures	3
	<hr/>
	17

Junior year in computer engineering

Fall semester	credits
EGRE 307 Integrated Circuits	4
EGRE 337 Signals and Systems II	3
EGRE 364 Microcomputer Systems	4
EGRE 365 Digital Systems	3
General education electives ⁺	3
	<hr/>
	17

Spring semester

Technical elective*	3
Technical elective*	3
CMSC 312 Introduction to Operating Systems	3

General education elective	3
General education elective	3
	<hr/> 15

Summer internship between junior and senior year**Senior year in computer engineering**

Fall semester	credits
ENGR 402 Senior Design Studio I	1
ENGR 410 Review of Internship	1
EGRE 426 Computer Organization and Design	3
CMSC 419 Software Development Methods	3
Technical elective*	3
General education elective	3
SPCH 321 Speech for Business and the Professions or MGMT 325 Oral Communications	3
	<hr/> 17

Spring semester

ENGR 403 Senior Design Studio II	1
EGRE 427 Advanced Digital Design	4
Technical elective*	4
General education elective	3
General education elective	3
	<hr/> 15

Total credits 130

(Seven general education electives are required.)

* Technical electives (13 credits): the program requires a total of 13 credits of technical electives. The capstone project is contained in the EGRE 427 course that is required for this track. The technical electives must be chosen from courses such that the following criteria are met:

- Please refer to the approved program elective list for eligible technical elective courses.
- At least three credits must come from a different concentration area within electrical engineering.
- At least three credits from outside the Electrical Engineering Program (non-EGRE courses).

Computer engineering concentration areas**Communication systems**

EGRE 444 Communication Systems	3
EGRE 445 Digital Signal Processing	3
EGRB 408 Advanced Biomedical Signal Processing	3

Computer engineering

EGRE 426 Computer Organization and Design	3
EGRE 427 Advanced Digital Design	4
EGRE 429 VLSI Design	4

Controls engineering

ENGR 315 Process and Systems Dynamics	3
ENGR 427 Robotics	3

ENGR 454 Automatic Controls	4
EGRE 455 Control Systems Design	3
EGRM 410 Mechanical Engineering Laboratory 3	

Microelectronics

ENGR 334 Introduction to Microelectronic Fabrication	4
EGRE 309 Electromagnetic Fields	3
EGRE 435 Semiconductor Processes	4
EGRE 436 Advanced Semiconductor Fabrication	4

Program options

Students in the Electrical or Computer Engineering Program may elect one of the following programs/options. These options may, however, require more than 130 credit hours in order to fulfill the requirements for both the baccalaureate degree in electrical engineering and those of the program/option listed below.

Pre-medicine/dentistry

BIOL 151, 152 Introduction to Biological Science	3, 3
BIOZ 151L, 152L Introduction to Biological Science Laboratory	1, 1
BIOL/PHIS 206 Human Physiology	3
BIOL 218 Cell Biology	3
CHEM 102 General Chemistry	4
CHEZ/FRSZ 102L General Chemistry Laboratory	1
CHEM 301-302 Organic Chemistry	3-3
CHEZ 301L Organic Chemistry Laboratory	2

Business minor

(See previous discussion of combination engineering/business degrees.)

Minor in electrical engineering

A student may earn a minor in electrical engineering with an emphasis in computer engineering, microelectronic fabrication, communications, control or signal processing. Each emphasis has a required set of courses.

- Computer engineering emphasis (20 credits): CMSC 245 or 255, EGRE 254, EGRE 364, EGRE 365, EGRE 426 and EGRE 427.
- Microelectronic fabrication emphasis (19 credits): EGRE 206, EGRE 224, EGRE 303, ENGR 334 and EGRE 435.
- Communications emphasis (18 credits): EGRE 206, EGRE 224, EGRE 335, EGRE 336, EGRE 444.

- Control emphasis (19 credits): EGRE 206, EGRE 224, EGRE 335, ENGR 315 and EGRE 454.

- Signal Processing emphasis (18 credits): EGRE 206, EGRE 224, EGRE 335, EGRE 337 and EGRE 445.

Courses in electrical engineering (EGRE)**EGRE 150 Introduction to Electrical Engineering**

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: MATH 200. Students will develop a preliminary understanding of electrical engineering through a series of relevant projects. The projects will focus on the fundamental building blocks: signals (analog, digital, one- and multidimensional), systems (analog, digital, one- and multidimensional), implementation platforms (analog, digital, hardware, software) and implementation tools (design, tools, simulators, compilers, debuggers, testing tools). For each project, the students will be introduced to the problem, the relevant theory, the possible implementation platforms and the proper development tools.

EGRE 206 Electric Circuits

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: ENGR 101. An introduction to electrical circuit theory and its application to practical direct and alternating current circuits. Topics include: Kirchhoff's Laws (review from ENGR 101), fundamental principles of network theorems, transient and steady-state response of RC, RL and RLC circuits by classical methods, time-domain and frequency-domain relationships, phasor analysis and power. Laboratory work, practical applications and integral laboratory demonstrations emphasize and illustrate the fundamentals presented in this course.

EGRE 224 Introduction to Microelectronics

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 206 and MATH 301. This course covers the analysis, modeling and design of electrical circuits which contain electronic devices. Topics include: electrical behavior of devices such as p-n junction diodes, field effect transistors and bipolar junction transistors along with operational amplifiers. Common concepts such as input and output impedances, amplification, frequency response and circuit typologies tie together the chapters on individual devices. Students will learn to design analog circuits to specifications through laboratory problems, a design project and circuit simulation using SPICE.

EGRE 254 Digital Logic Design

Semester course; 3 lecture and 2 laboratory hours. 3 credits. Prerequisites: ENGR 101 and MATH 201 or equivalents. An introduction to digital logic design with an emphasis on practical design techniques and circuit implementations. Topics include number representation in digital computers, Boolean algebra, theory of logic functions, mapping techniques and function minimization, design of combinational, clocked sequential and interactive digital circuits such as comparators, counters, pattern detectors, adders and subtractors. Asynchronous sequential circuit concepts are introduced. Students will use the above basic skills in the laboratory to design and fabricate digital logic circuits.

EGRE 303 Electronic Devices

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRE 224 and MATH 301. An introduction to solid state electronic devices covering the fundamentals of atomic structure, band theory, charge transport in solids and terminal electrical characteristics of semiconductor devices including p-n junction and Schottky diodes, bipolar junction and insulated gate field-effect transistors.

EGRE 307 Integrated Circuits

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: EGRE 224 or consent of chair. Analysis, modeling, design and measurement of advanced MOSFET and bipolar analog integrated circuits. Topics include active filters, differential amplifiers, frequency response and feedback topologies. Operational amplifier circuit topologies are used as a means of studying input, gain, level shift and output stages. Circuit design techniques are explored for mixed signal analog-digital circuits. This course provides the opportunity for a group design project of an integrated circuit chip, using advanced software tools for simulation and physical layout. The Myers-Briggs type indicator is administered to the students to be used in conjunction with the group project.

EGRE 309 Electromagnetic Fields

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301 and MATH 307 or consent of chair. Fundamentals of engineering electromagnetics, including electrostatics, magnetostatics, electrodynamics and conditions that permit the use of circuit theory. Analysis and understanding of the phenomena associated with electric and magnetic fields. Wave dynamical solutions of Maxwell's equations that will include: reflection and transmission in dielectric materials, waveguiding and transmission structures, and radiation from antennas. Computer simulation techniques such as finite-difference time-domain solutions of propagating waves will reinforce lecture material. Practical engineering applications will be investigated in a wave propagating laboratory exercise.

EGRE 310 Microwave and Photonic Engineering

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 224. Wireless and optical communications applications of electromagnetic fields. Theory of microwave transmission line and waveguiding structures including impedance transformation and matching. Essential concepts from geometrical and physical optics and the interaction of photons with materials will be studied. Operating principles and design considerations of fiber optics, photodetectors and receivers are considered.

EGRE 335 Signals and Systems I

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 206, MATH 301 and CMSC 245. This class presents the concept of linear continuous-time and discrete-time signals and systems, their classification, and analysis and design using mathematical models. Topics to be covered: the concepts of linear systems and classification of these systems, continuous-time linear systems and differential and difference equations, convolution, frequency domain analysis of systems, Fourier series and Fourier transforms and their application, and continuous-time to discrete-time conversion.

EGRE 336 Introduction to Communication Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 337. Introduction to the theory and application

of analog and digital communications including signal analysis, baseband transmission, amplitude and angle modulation, digital modulation, baseband digital communication, and design considerations.

EGRE 337 Signals and Systems II

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 335. This class presents the Laplace and Z transforms and their application to electrical circuits and discrete-time systems, an introduction to probability, random variables and random processes with applications in electrical engineering.

EGRE 364 Microcomputer Systems

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 254 and CMSC 245. Basic computer organization, microprocessor instruction sets and architectures, assembly language programming and the function of computer memory and I/O subsystems will be discussed. The laboratory is designed to reinforce the lectures by providing the opportunity to study the workings of a simple computer system in detail using simulation models and real hardware. Students will write and execute assembly language programs and make use of commercial design automation tools.

EGRE 365 Digital Systems

Semester course; 3 lecture and 2 laboratory hours. 3 credits. Prerequisite: EGRE 254. Corequisite: EGRE 364. Focuses on the design of modern digital systems. Topics covered include: introduction to modeling, simulation, synthesis and FPGA design techniques using VHDL; microprocessor peripherals and interfacing; embedded system hardware and software design issues.

EGRE 426 Computer Organization and Design

Semester course; 3 lecture and 1 laboratory hours. 3 credits. Prerequisites: EGRE 364 and EGRE 365. This course presents the foundation for computer design at the register transfer level. Starting from an instruction set architecture, students will learn the process used to design a data path and control unit to implement that instruction set. In addition, the topics of computer components and structures, data paths and control unit organizations, I/O and memory systems, interrupt systems, pipelining and multiprocessing will be discussed. In addition to reinforcing the lecture material, the laboratory exercises will teach the students the art of modeling and designing computer system components using a hardware description language.

EGRE 427 Advanced Digital Design

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 426. This course provides students with practical foundations for the design, implementation and testing of digital systems. It expands on the digital and computer system theory presented in prerequisite courses. Topics covered include: microcontrollers and embedded processors, application specific IC (ASIC) architectures and implementing digital systems with ACISs, logic families and high-speed interfacing, logic synthesis, design methodologies, hardware/software codesign, production testing and design for testability, and construction, testing and debugging of digital system prototypes. In the laboratory, the students will design, construct, test and debug a multidisciplinary, computer-based hardware/software system for their senior design project.

EGRE 429 VLSI Design

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 307 and EGRE 364. Analysis of NMOS and PMOS transistor design and

their use in implementing digital logic. Implementation and layout of simple and complex digital logic cells using CMOS and other techniques. Fabrication design rules and design technology. VLSI chip layout and implementation. Students will design a complete VLSI chip using commercial design tools. The resulting designs will be submitted for fabrication using the MOSIS process.

EGRE 435 Semiconductor Processes

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: EGRE 303 and ENGR 334 or the consent of the instructor. This course presents a detailed analysis of the physics and modeling of the basic processes used in semiconductor processing. Emphasis is placed on the non-ideal effects that cause realistic processes to deviate from first order models, including second order effects such as interactions on the atomic level and the influence of crystal defects. After developing a theoretical understanding, a higher order physical modeling approach is derived. These models are implemented and explored in the laboratory section of the course using computer simulation and are used as a basis for designing a realistic semiconductor device process. Circuit layout software is used in the laboratory portion of the course to design a test chip specifically for the lab device process. This device and process design accomplishes the design phase of the senior design project, which is then completed in EGRE 436.

EGRE 436 Advanced Semiconductor Fabrication

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisite: EGRE 435 or consent of instructor. This course covers process integration into functional modules such as trench or LOCOS isolation, retrograde well formation, shallow junction formation, channel engineering, advanced gate structures and multilevel metal interconnects. This course covers low-pressure chemical vapor deposition, silicide formation, plasma etching of thin films and chemical mechanical polishing. A polysilicon gate CMOS process is used as the basis for studying many of the topics covered in lecture. Electrical characterization of devices and circuits also are included in the lab work.

EGRE 444 Communication Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 336. Design and analysis of analog and digital communication systems, pulse modulation, information and digital transmission, digital modulation, information theory and coding will be treated. Emphasis is placed on the student gaining an appreciation for and an understanding of the role of optimization and trade-offs by considering bandwidth requirements, signal-to-noise ratio limitations, complexity and cost of analog and digital communication systems.

EGRE 445 Digital Signal Processing

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Prerequisite: EGRE 337. The course focuses on digital signal processing theory and algorithms, including sampling theorems, transform analysis and filter design techniques. Discrete-time signals and systems, sampling of continuous time signals, the Z transform, transform analysis of linear time-invariant systems, structures for discrete-time systems and filter design techniques are treated. Several applications of DSP in telecommunications, image and video processing, and speech and audio processing are studied.

EGRE 455 Control Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGR 454. This course covers the use of state space methods to model analog and digital linear and nonlinear systems. Emphasis is placed on the student gaining mathematical modeling experience, performing sensitivity and stability analysis and designing compensators to meet systems specifications. Topics treated will include a review of root locus and frequency design methods, linear algebraic equations, state variable equations, state space design and digital control systems (principles and case studies). The students will use complex dynamic systems for analysis and design.

EGRE 491 Special Topics

Semester course; 3 lecture/laboratory hours. 3 credits. May be repeated up to a maximum of nine credits (in three separate topics) applicable toward the electrical engineering major elective requirement. Advanced study of a selected topic in electrical engineering. See Schedule of Classes for specific topic to be offered and for prerequisites.

EGRE 526/CMSC 506 Computer Networks and Communications

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 312. Theoretical and applied analysis of basic data communication systems; design of networks in the framework of the OSI reference model; Local and Wide Area Networks; performance analysis of networks; error control and security. Students will work in teams to design and implement a small computer network.

Mechanical Engineering Department

Mohamed Gad-el-Hak

Inez Caudill Professor and Department Chair (2002)

B.Sc. 1966 Ain Shams University, Egypt
Ph.D. 1973 Johns Hopkins University

Mechanical engineering, the art and science of making things that move, is one of the oldest and broadest fields of engineering endeavors. In nature, molecules and atoms and their even smaller constituents are nanoscale machines. The universe and galaxies and their constituents are gargantuan machines. Man-made machines fall somewhere in between those two extreme scales. Fabricated machines include air, land and sea vehicles such as airplanes, trains, automobiles and ships; energy conversion systems such as nuclear and fossil-fuel power plants, internal combustion engines, jet engines, wind turbines and fuel cells; environment-control systems such as heating, ventilation and air-conditioning equipments; machines used in the construction, mining, chemical, textile, electronics and other industries; and, finally, machines used to make other machines. Another important application of mechanical engineering is

in the medical field where artificial organs, surgical tools and drug delivery systems are vital to the well-being of humans. Areas of robotics, automation and “smart” materials are areas of significant growth and opportunity.

Only in the last century, mechanical engineering has been largely based on the sciences of mechanics and thermodynamics. Engineers use mathematics and computers to analyze and synthesize complex systems. Mechanical engineering students at VCU will first acquire a strong foundation in physics and mathematics, followed by engineering courses in design, control and measurements that will enable them to design, fabricate, control, operate, test, and maintain present as well as yet-to-be-invented machines. Society values mechanical engineers for their ability to solve complex problems and for their constant drive to improve the living quality and standard of all people. Mechanical engineers can play a vital role in improving the environment as well. Factories, vehicles and power plants inevitably generate undesired pollution. Mechanical engineers work creatively to provide the world with its energy and transportation needs at the minimum possible release of pollutants.

Undergraduate studies in the Mechanical Engineering Program at VCU will prepare students for challenging careers in mechanical engineering. The curriculum also will prepare you for further studies (and careers) in law, business, management and medicine.

Freshman year in mechanical engineering

Fall semester	credits
CHEM 101 General Chemistry	3
CHEZ/FRSZ 101L General Chemistry Laboratory	1
MATH 200 Calculus with Analytic Geometry	4
ENGL 101 Writing and Rhetoric Workshop I	3
ENGR 101 Introduction to Engineering	4
	<hr/> 15

Spring semester

ECON 205 Economics of Product Development	3
MATH 201 Calculus with Analytic Geometry	4
PHYS 207 University Physics I	5
EGRM 215 Engineering Visualization	2
ENGR 115 Computer Methods in Engineering	1
	<hr/> 15

Sophomore year in mechanical engineering

Fall semester	credits
PHYS 208 University Physics II	5
MATH 301 Differential Equations	3
ENGR 102 Engineering Statics	3
ENGL 200 Writing and Rhetoric Workshop II	3
General education requirement	3
	<hr/> 17

Spring semester

EGRM 201 Dynamics and Kinematics	3
EGRM 202 Mechanics of Deformables	3
MATH 307 Multivariate Calculus	3
EGRE 206 Electric Circuits	4
EGRM 204 Thermodynamics	3
	<hr/> 16

Junior year in mechanical engineering

Fall semester	credits
ENGR 301 Fluid Mechanics	3
ENGR 305 Sensors/Measurements	3
EGRM 300 Mechanical Systems Design	3
EGRM 309 Material Science for Engineers	3
EGRM 420 CAE Design	3
MGMT 319 Organizational Behavior	3
	<hr/> 18

Spring semester

ENGR 302 Heat Transfer	3
ENGR 315 Process and Systems Dynamics	3
EGRM 303 Thermal Systems Design	3
EGRM 421 CAE Analysis	3
General Education Requirement	3
General Education Requirement	3
	<hr/> 18

Summer

The summer between the junior and senior years is devoted to either a full-time university, industrial manufacturing floor, or industrial research laboratory internship. This summer experience is intended to be intense and to have a major component of “hands-on” practice of engineering which will bring the life of “real-world” engineering practice to the classroom.

Senior year in mechanical engineering

Fall semester	credits
ENGR 402 Senior Design Studio I	1
ENGZ 402L Senior Design Laboratory I	2
ENGR 410 Review of Internship	1
EGRM 410 Engineering Synthesis Laboratory	3
STAT 541 Applied Statistics or MGMT 524	3
Technical electives	6
	<hr/> 16

Spring semester

ENGR 403 Senior Design Studio II	1
ENGZ 403L Senior Design Laboratory II	2

General education requirement	6
Technical electives	6
	15

Minimum total requirement 130

Mechanical engineering students must select a total of four technical electives from the three lists of courses below. Other technical electives may be taken with the approval of the department chair. Students must take BIOL/PHIS 206 before taking a course in biomedical engineering.

Technical electives

Mechanical design

EGRM 436 Engineering Materials	3
EGRM 437 Principles of Polymer Engineering	3

Manufacturing

EGRM 425 Introduction to Manufacturing Systems	3
EGRM 426 Manufacturing Processes	3
EGRM 428 Polymer Processing	3
ENGR 427 Robotics	3

Biomedical engineering

BIOL/PHIS 206 Human Physiology	3
EGRB 310 Biomechanics	3
EGRB 307 Biomedical Instrumentation	3
EGRB 406 Artificial Organs	3
EGRB 427 Biomaterials	3

In lieu of the above technical electives, mechanical engineering majors may select a minor in business, physics, mathematical sciences, physiology, electrical engineering, chemical engineering or one of the following programs/options. However, this may require more than 130 credits in order to fulfill both the requirements for the baccalaureate degree in mechanical engineering and those of the minor or program/option selected below:

Pre-medicine/dentistry option

CHEM 301-302 Organic Chemistry	3-3
BIOL 151 and 152 Introduction to Biological Sciences I and II	3, 3
BIOZ 151L and 152L Introduction to Biological Sciences Laboratory I and II	1, 1
BIOL 218 Cell Biology	3
One additional upper level course is to be selected with the approval of an adviser.	

Minor in Mechanical Engineering

The minor in mechanical engineering consists of 21 credits and successful completion of the following courses: ENGR 102 Engineering Statics, EGRM 201 Dynamics

and Kinematics, EGRM 202 Mechanics of Deformables, EGRM 204 Thermodynamics, ENGR 301 Fluid Mechanics, EGRM 300 Mechanical Systems Design and ENGR 302 Heat Transfer. A maximum of nine credits of comparable course work may be substituted with approval of the department chair in Mechanical Engineering.

Courses in mechanical engineering (EGRM)

EGRM 201 Dynamics and Kinematics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207. Corequisite: MATH 201. Kinematics and kinetics of particles. Kinematics of rigid bodies; translation and fixed-axis rotation relative to translating axes, general planar motion, fixed-point rotation and general motion. Kinetics of rigid bodies: center of mass, mass moment of inertia, product of inertia, principal-axes, parallel-axes theorems. Planar motion, work-energy method. Design of cams, gears and linkages.

EGRM 202 Mechanics of Deformables

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGR 102, MATH 200-201. An introductory course covering the mechanics of deformable solids. Subjects include stress, strain and constitutive relations; bending of beams; torsion; shearing; deflection of beams; column buckling; fatigue; failure theory; analysis and design of bar-type members.

EGRM 204 Thermodynamics

Semester course; 3 lecture hours. 3 credits. Prerequisites: PHYS 207 and MATH 301 or permission of the instructor. Fundamental concepts of thermodynamics; first and second law of thermodynamics; entropy and equilibrium; equations of state; properties of pure fluids; molecular interpretation of thermodynamic properties; phase equilibria; work and heat; power cycles; chemical reactions.

EGRM 215 Engineering Visualization

Semester course; 1 lecture and 3 laboratory hours. 2 credits. Prerequisite: Mechanical engineering major or permission of instructor. The creation and interpretation of graphical communication for engineering students. Two- and three-dimensional part and assembly representations. Dimensioning and tolerancing as a link between design and manufacturing. An introduction to solid modeling, virtual prototyping and extension of student programming skills.

EGRM 300 Mechanical Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRM 201, EGRM 202 and MATH 301, or permission of the instructor. Basic principles of applied mechanics and materials employed for the design of machine elements and mechanical systems; state of stress, deformation and failure criterion is applied to bearings, brakes, clutches, belt drives, gears, chains, springs, gear trains, power screws and transmissions.

EGRM 303 Thermal Systems Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 301, ENGR 301 and ENGR 304 or permission of the instructor. Fundamentals of heat transfer, thermodynamics and fluid mechanics applied to the analysis, design, selection and application of energy conversion systems.

EGRM 308 Automatic Controls

Semester course; 3 lecture and 1 laboratory hour. 3 credits. Prerequisites: PHYS 207, MATH 301, ENGR 102 or permission of the instructor. Mathematical modeling of automatic control systems; transfer functions, stability theory; open-loop and closed-loop control; root locus plots; application to control system design.

EGRM 309 Material Science for Engineers

Semester course; 3 lecture hours. 3 credits. Fall. Prerequisites: CHEM 101, EGRM 202. The study of materials from a microscopic or atomic level. Consideration of mechanical, electrical, thermal, magnetic and optical properties of metals, ceramics, polymers and composites. Thermal processing for modification of properties, dislocation and phase transformation. Material selection for design with consideration of economic, environmental and societal issues.

EGRM 410 Engineering Synthesis Laboratory

Semester course; 2 lecture hours and 3 laboratory hours. 3 credits. Prerequisites: Senior standing in the School of Engineering or permission of the instructor. Students perform design-oriented experiments in the area of mechanical systems, with a focus on motor controls and mechatronics, and in the area of thermal-fluid systems, with a focus on refrigeration and air-conditioning.

EGRM 420 CAE Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: Junior standing in the School of Engineering. Review of geometric modeling, engineering visualization tools applicable to engineering design. Develop visual thinking and communication skills with assistance of computer modeling tools. Emphasis placed on creative design, application of physical laws, and hands-on virtual or physical projects. Topics include review of kinematics/dynamics of commonly used planar mechanisms and programming techniques for motion simulation. Interdisciplinary projects will be assigned to assess students' design knowledge.

EGRM 421 CAE Analysis

Semester course; 3 lecture hours. 3 credits. Prerequisites: EGRM 202, MATH 301 or permission of the instructor. Application of computer-aided techniques to the analysis of engineering problems utilizing linear algebra, computer calculations of matrices and numerical solution of governing differential equilibrium equations common to all fields of engineering. Students will be exposed to formulations of finite element (FE) methods of analysis. Emphasis is placed on practical aspects of structural FE modeling. Analysis programs such as MSC/PATRAN, MSC/NASTRAN and MATLAB are utilized.

EGRM 425 Introduction to Manufacturing Systems

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in the School of Engineering or permission of the instructor. Basic principles of systems analysis and modeling applied to manufacturing processes and operations; numerical control, programmable controllers, flexible manufacturing systems, group technology, process planning and control, modeling and simulation of factory operations.

EGRM 426 Manufacturing Processes

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in the School of Engineering or permission of the instructor. Introduction to the operation and design of metal fabrication processes; analysis of metal casting, extrusion, rolling, forging, wire

and rod drawing; review of metal removal and joining methods; economic and business considerations.

EGRM 428 Polymer Processing

Semester course; 3 lecture hours. 3 credits. Prerequisites: ENGR 301, ENGR 302 or permission of the instructor. Basic principles of momentum and heat transfer applied to the analysis of polymer processing operations; introduction to polymer rheology; operation and design aspects of extruders, blown film, injection molding, thermoforming and compression molding machinery.

EGRM 435 Design for Manufacturing and Assembly

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in the School of Engineering or permission of the instructor. Methodologies used in the synthesis and analysis of product design in order to optimize manufacturing and assembly; relationship of design to the production processes, materials handling, assembly, finishing, quality and costs with emphasis on both formed and assembled products.

EGRM 436 Engineering Materials

Semester course; 3 lecture hours. 3 credits. Prerequisites: Senior standing in the School of Engineering or permission of the instructor. Materials properties and their modification as related to engineering properties and design; elastic and plastic stress-strain behavior of materials along with diffusion in solids, phase equilibria, and phase transformations; materials selection considerations include design, fabrication, mechanical failure, corrosion, service stability as well as compatibility and function in the human body.

EGRM 437 Principles of Polymer Engineering

Semester course; 3 lecture and 1 laboratory hour. 3 credits. Prerequisite: EGRM 202 or permission of the instructor. Basic principles of mechanics applied to the mechanical design and fabrication of polymers; introduction to polymer structure, rubber elasticity, and viscoelasticity; mechanical properties, plastic part design and plastic materials selection; fabrication processes.

EGRM 568 Robot Manipulators

Semester course; 3 lecture hours. 3 credits. Prerequisite: ENGR 427 or permission of instructor. Provides students with a basic knowledge in the dynamic analysis and control of robot manipulators. Topics include Jacobian analysis, manipulator dynamics, linear and nonlinear control of manipulators, force control of manipulators, robot manipulator applications and an introduction to telemanipulation.

Computer Science Department

James E. Ames IV

Associate Professor and Department Chair (1985)
B.S. 1973 Hampden-Sydney College
M.A. 1975 Duke University
Ph.D. 1977 Duke University

The Bachelor of Science in Computer Science is a rigorous, highly concentrated curriculum of computer science courses, accredited by the Computer Accreditation Commission of ABET, 1111 Market Place, Suite 1050, Baltimore, MD 21202-4012;

telephone, (410) 347-7700. The program includes advanced study in several important areas of computer science and provides a strong foundation in the discipline.

Computer science graduation requirements

The Bachelor of Science curriculum in computer science requires a minimum of 120 credit hours and includes undergraduate requirements, general education requirements and computer science major requirements.

Computer science general education requirements

All students seeking a baccalaureate degree in computer science within the School of Engineering are required to fulfill general education requirements, as follows.

1. Communicating

Students should demonstrate effective oral and written communication skills. They should be able to communicate ideas clearly and effectively, consistent with the standards of the computer science profession. All computer science students will demonstrate competence in English composition by successfully completing ENGL 101 Writing and Rhetoric Workshop I and ENGL 200 Writing and Rhetoric Workshop II with a "C" grade or above, and one upper-level writing intensive course outside the major.

Both oral and written communication skills will be stressed and developed in computer science courses, as appropriate. In particular, the research seminar course (CMSC 490) will be designated as writing intensive. In this class, students will prepare written reports that will be critiqued from both a technical and a writing standpoint. The reports submitted will be revised as required, as the students write to learn and ultimately meet the standards of written communication required in industry. Also, the reports will be presented orally to classmates and the public, using state-of-the-art presentation techniques.

2. Ethics

Students will have an understanding of the ethical characteristics of the computer science profession and practice as well as sensitivity to the socially related technical problems that confront the profession and the computer scientist's responsibility to protect public information. Students will be able to identify and analyze ethical issues in computer science. Ethics will be discussed in several computer science courses including CMSC 490 Research Seminar. Computer science students also will take one of the following courses in ethics offered by the Department of Philosophy and Religious Studies:

PHIL 211 History of Ethics
PHIL 212 Ethics and Applications
PHIL 213 Ethics and Health Care
RELS 340/INTL 341 Global Ethics and the World's Religions

3. Quantity and form

Students will demonstrate a good knowledge of the application of calculus and discrete mathematics in the analysis and implementation of computer science problems. They should develop analytical skills and logical reasoning powers regarding the application of these mathematical methods in computer science.

All computer science students will take MATH 200-201 Calculus with Analytical Geometry, MATH 211 Mathematical Structures and STAT 212 Concepts of Statistics. Physics, if taken, will be calculus based.

4. Science and technology

Computer science students will have an understanding of the process and concepts of modern experimental science, including laboratory application of fundamental ideas and methods. All computer science students will successfully complete:

- CHEM 101-102 and CHEZ/FRSZ 101L and 102L General Chemistry and laboratory, or PHYS 207-208 University Physics.
- BIOL 101 Biological Concepts, BIOL 151 Introduction to Biological Sciences I, or BIOL 152 Introduction to Biological Sciences II.
- an additional three-credit course in science that counts toward a major in chemistry, biology or physics.

5. Interdependence

Students will develop an awareness of the strong global interdependence of culture, economics and society to prepare for a possible international career in computer science by successfully completing one internationally focused course in the social sciences and one global culture course in the humanities, including foreign languages at the intermediate level.

Courses (three credit minimum) will be selected from the following lists. (Other appropriate courses may be selected with the approval of an adviser.)

Social sciences
ECON 325 Environmental Economics
GEOG 322 World Political Geography
MGMT 319 Organizational Behavior
MGMT 418 International Management
MRBL 378 International Marketing
POLI/INTL 105 International Relations
POLI/INTL 361 Issues in World Politics
POLI/INTL 365 International Political Economy

AND

Humanities/languages
CHIN 201 Intermediate Chinese
FREN 201 Intermediate French
GRMN 201 Intermediate German
ITAL 201 Intermediate Italian

PORT 201 Intermediate Portuguese
 RELS 340/INTL 341 Global Ethics and the
 World's Religions
 RUSS 201 Intermediate Russian
 SPAN 201 Intermediate Spanish

6. Visual and performing arts

Students should demonstrate an enhanced understanding and experience of the various visual and performing arts. They should understand the process of artistic expression and be able to respond to artistic work from a variety of perspectives and contexts.

Computer science students will take one course (1.5 credit minimum) in an appropriate area of the visual or performing arts from the following list. (Other appropriate courses may be selected with the approval of an adviser.)

A. Basic-level courses designed specifically for non-arts majors.

Art education

ARTE 121-122 The Individual in the Creative Process
 ARTE 301-302 Art for Elementary Teachers
 ARTE 408 Two-dimensional Art Experiences
 ARTE 409 Three-dimensional Art Experiences

Art foundation

ARTF 121-122 Introduction to Drawing

Communication arts and design

CARD 191 Studio Topics in Communication Arts and Design

Dance/choreography

DANC 171, 172 T'ai Chi
 DANC 183-184 Introduction to Modern Dance Technique
 DANC 313 Dance in World Cultures

Interior design

IDES 103-104 Introductory Studio Course

Music

APPM 193 Class Lessons in Voice
 APPM 195 Class Lessons in Guitar
 MHIS 105-106 Introduction to Writing Music
 MHIS 243 Music Appreciation

Painting and printmaking

PAPR 155-156 Drawing and Painting, Basic

Photography and film

PHTO 243 Photography

Sculpture

SCPT 209 Introduction to Sculpture

Theatre

THEA 107, 108 Introduction to Stage Performance

B. Basic-level courses open to both arts and non-arts majors.

Art education

ARTE 353 Art and Perceptual Communication

Art history

ARTH 103, 104 Survey of Western Art
 ARTH 145, 146 Survey of Asian Art
 ARTH 207 Introduction to Non-Western Art
 ARTH 270, 271 History of the Motion Picture

Crafts

CRAF 201-202 Metalsmithing
 CRAF 211-212 Jewelry
 CRAF 221 Woodworking Techniques
 CRAF 241 Ceramics: Handbuilding
 CRAF 242 Ceramics: Wheelthrowing
 CRAF 251, 252 Introduction to Glassworking
 CRAF 261, 262 Beginning Textiles

Dance/choreography

DANC 105-106 Improvisation
 DANC 111-112 Ballet Technique I
 DANC 114, 214, 314, 414 Summer Dance Workshop
 DANC 121, 122/AFAM 121, 122 Tap Technique I
 DANC 126, 127/AFAM 126, 127 African-Caribbean Dance I
 DANC 141, 142 Ballroom Dancing
 DANC 243 Dynamic Alignment
 DANC 291 Topics in Dance
 DANC 313 Dance in World Cultures

Fashion design and merchandising

FASH 290 Textiles for the Fashion Industry
 FASH 319 Contemporary Fashion

Music

APPM 300-level Private Instruction: Principal and Secondary Performing Mediums
 APPM 370 Large Ensembles (auditions required for some sections)
 APPM 390 Small Ensembles (auditions required for all sections)
 MHIS 120 Introduction to Musical Styles
 MHIS 250/AFAM 250 Introduction to African-American Music
 MHIS 350/INTL 370/AFAM 350 Studies in the Music of the African Continent and Diaspora

Photography and film

PHTO 233 Elements of the Moving Image

Theatre

THEA 103 Stagecraft
 THEA 104 Costume Construction
 THEA 211-212 Introduction to Drama
 THEA 221 Introduction to Scene Design/
 THEZ 221L Introduction to Scene Design Laboratory
 THEA 229 Introduction to Lighting Design
 THEA 303/AFAM 303 Black Theatre

C. Advanced-level courses open to both arts and non-arts majors. Some require special permission/audition.

Dance/choreography

DANC 221, 222 Tap Technique II
 DANC 319, 320 Video/Choreography Workshop
 DANC 343 Body Imagery

7. Humanities and social sciences

Study in the humanities and social sciences is intended to make computer science students fully aware of cultural traditions as well as relationships in society. Students must complete 30 credit hours from the following programs: African American Studies (AFAM), American Studies (AMST), Anthropology (ANTH), Art History (ARTH), Criminal Justice (CRJS), Economics (ECON), English (ENGL), Geography (GEOG), History (HIST), Management (MGMT), Mass Communications (MASC), Philosophy (PHIL), Political Science (POLI), Psychology (PSYC), Religious Studies (RELS), Social Sciences (SOCS), Sociology (SOCY), Urban Studies (URSP) and Women's Studies (WMNS). Some courses in other programs may be counted toward this requirement with Computer Science Department approval. Some of the courses chosen to satisfy previous requirements also may be used to satisfy this requirement (e.g., ENGL 200). These courses should be selected to broaden the cultural, historical and artistic perspectives of computer science students — or otherwise to widen their interests and to continue their intellectual growth — keeping in mind that these courses are intended to serve personal development and not vocational needs.

Degree requirements – Bachelor of Science in Computer Science

The Bachelor of Science in Computer Science curriculum requires a minimum of 40 credits in courses labeled CMSC. Computer science majors are required to complete all of the following courses:

- One of: MATH 301 Differential Equations, MATH 310 Linear Algebra or MATH 351 Applied Abstract Algebra.
- All of the following computer science courses:
 - CMSC 255 Introduction to Programming
 - CMSC 256 Data Structures and Object Oriented Programming
 - CMSC 301 Introduction to Discrete Structures
 - CMSC 311 Computer Organization and Assembler Language Programming
 - CMSC 312 Introduction to Operating Systems
 - CMSC 355 Program Design
 - CMSC 401 Algorithm Analysis with Advanced Data Structures

CMSC 403 Programming Languages
 CMSC 490 Research Seminar

- All students must complete a senior team project experience. In order to fulfill this requirement, all students must complete one 500-level course involving a team project. Currently, the following courses satisfy this requirement: CMSC 502, CMSC 506 and CMSC 519.

- In order to provide breadth and depth of knowledge, 15 upper-level computer science credits must be completed. The team project course may be counted toward these 15 credits. These credits must include at least one course from each of the following lists:

- A: CMSC 502, CMSC 519, CMSC 520, CMSC 525
 B: CMSC 504, CMSC 508, CMSC 511, CMSC 526
 C: CMSC 505, CMSC 506, CMSC 509, CMSC 521

Curriculum for computer science

Freshman year

Fall semester	credits
MATH 211 Mathematical Structures	3
CMSC 255 Introduction to Programming	3
ENGL 101 Writing and Rhetoric Workshop I	3
Humanities electives	6
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	15

Spring semester

CMSC 256 Data Structures and Object Oriented Programming	3
CMSC 301 Introduction to Discrete Structures	3
Interdependence elective	3
Arts elective	2 or 3
Humanities elective	3
	<hr/>
	14 or 15

Sophomore year

Fall semester

CMSC 311 Computer Organization and Assembler Language Programming	3
CMSC 355 Program Design	3
Ethics elective	3
MATH 200 Calculus with Analytic Geometry	4
ENGL 200 Writing and Rhetoric Workshop II	3
	<hr/>
	16

Spring semester

CMSC 312 Introduction to Operating Systems	3
CMSC 401 Algorithm Analysis with Advanced Data Structures	3

Humanities elective	3
MATH 201 Calculus with Analytic Geometry	4
Writing intensive course outside the major	3
	<hr/>
	16

Junior year

Fall semester

CMSC 403 Programming Languages	3
CMSC upper-level elective	3
STAT 212 Concepts of Statistics	3
CHEM 101 and CHEZ/FRSZ 101 General Chemistry and Laboratory or PHYS 207 University Physics I	4 or 5
	<hr/>
	13 or 14

Spring semester

CMSC 490 Research Seminar	1
CMSC upper-level elective	3
MATH elective	3
CHEM 102 and CHEZ/FRSZ 102L General Chemistry II or Laboratory or PHYS 208 University Physics II	4 or 5
General elective	3
	<hr/>
	14 or 15

Senior year

Fall semester

CMSC upper-level elective	3
Humanities electives	6
Biology elective	3
General electives	1 to 4
	<hr/>
	13 to 16

Spring semester

CMSC upper-level elective	3
CMSC upper-level elective	3
General electives	6
Science elective	3
	<hr/>
	15

Total credits 120
minimum

Minor in computer science

A minor in computer science consists of at least 18 credits including CMSC 255, CMSC 256, MATH 211 and nine upper-level credits in computer science. A minimum GPA of 2.0 must be achieved in the minor.

Certificate in computer science

The certificate in computer science is available to students who have received bachelor's degrees in other subject areas

and wish to pursue the study of computer science. Students who receive certification through this program equip themselves for many professional opportunities in the scientific community and with government agencies. The certification also is designed to allow interested students to prepare for graduate study in computer science.

Certification through this program requires a minimum of 30 credits in computer science at the 200 level or higher. Course work completed before or after receiving the bachelor's degree can be applied to the certification.

At least 18 credits must be from courses in computer science at the 300 level or higher and earned at VCU after the candidate has received a bachelor's degree. At least six of these credits must be at the 400 level or higher.

CMSC 311 Computer Organization and Assembler Language Programming and CMSC 401 Algorithm Analysis with Advanced Data Structures are required courses for certificate students.

Up to six credits of approved electives in mathematics or statistics may be counted toward the certificate.

Upon successful completion of all course work in five years or less, with a GPA of 2.5 or better, the student is awarded the computer science certificate. Successful completion of this program does not guarantee admission to the master's degree program in computer science.

Courses in computer science

Students registering for CMSC 245 or 255 must have taken the VCU Mathematics Placement Test within the one-year period immediately preceding the beginning of the course. An exception to this policy is made in the case in which the stated alternative prerequisite course has been completed at VCU.

CMSC 191 Topics in Computer Science

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: Permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics and prerequisites.

CMSC 245 Introduction to Programming Using C++

Semester course; 3 lecture hours. 3 credits. Prerequisites: MATH 151 or satisfactory score on the Mathematical Placement Test. Students are expected to have fundamental computer skills. Introduction to the

concepts and practice of structured programming using C++. Problem solving, top-down design of algorithms, objects, basic C++ syntax, control structures, functions and arrays. This course is intended for Engineering majors.

CMSC 246 Advanced Programming Using C++

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 245. Advanced programming in C++. Topics include program design, objects, classes, inheritance, files, strings, linked lists, stacks, queues, binary trees, recursion, and basic searching and sorting techniques. This course is intended for engineering majors.

CMSC 255 Introduction to Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: MATH 151 or equivalent. Students are expected to have fundamental computer skills. Introduction to structured programming using Java. Topics include problem solving, top-down design of algorithms using control structures, functions, arrays, basic I/O, basic concepts of objects and classes in Java, and the Java classes, String and String Tokenizer. Students may not receive credit for both CMSC 255 and INFO 250.

CMSC 256 Data Structures and Object Oriented Programming

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 255 with a grade of "C" or better and MATH 211 with a grade of "C" or better. Advanced programming using Java. Topics include introduction to object oriented design, inheritance, polymorphism, exceptions, interfaces, linked lists, stacks, queues, binary trees, recursion, and basic searching and sorting techniques. Students may not receive credit for both CMSC 256 and INFO 350.

CMSC 301 Introduction to Discrete Structures

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 255 with a grade of "C" or better and MATH 211 with a grade of "C" or better. A continuation of MATH 211. Recursion and induction. Operations on sets and relations. Formal languages with an emphasis on finite state automata and grammars. Monoids and graphs (trees in particular). Elementary combinatorics and advanced Boolean algebra.

CMSC 311 Computer Organization and Assembler Language Programming

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 256 with a grade of "C" or better. Registers, instruction set issues, data representation, data storage and processing, subprograms and parameter passing, macros and conditional assembly, interrupts, I/O, and arithmetic, logical and control operations.

CMSC 312 Introduction to Operating Systems

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 311 or EGRE 364. Computer systems design, I/O processing, secondary memory organization, command languages, memory management and job scheduling. Students will work in teams to design and implement an operating system simulation.

CMSC 355 Program Design

Semester course; 2 lecture and 2 laboratory hours. 3 credits. Prerequisite: CMSC 256 with a grade of "C" or better. Overview of the software design process including analysis, design and life cycle models. Students will work in teams to develop the design of a large system. Additionally, students will design smaller projects. These projects will involve the analysis and reworking of designs as well as their implementation.

CMSC 391 Topics in Computer Science

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisite: Permission of the instructor. This course will teach selected topics in computer science. See the Schedule of Classes for specific topics and prerequisites.

CMSC 401 Algorithm Analysis with Advanced Data Structures

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 256 with a grade of "C" or better and CMSC 301 with a grade of "C" or better. Introduction to algorithm analysis and complexity classes. Advanced data structures topics including multiple linked lists, height-balanced trees, B-trees, file organization and graphs. Analysis of various searching and sorting algorithms. Algorithm design topics include divide-and-conquer, dynamic programming, greedy methods and heuristic search.

CMSC 403 Programming Languages

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 301 with a grade of "C" or better and CMSC 311. Survey of representative modern programming languages. Formal definition of programming languages including specifications of syntax and semantics. Precedence, infix, prefix and postfix notation. Global properties of algorithmic languages. Sub-routines, co-routines and tasks. List processing, string manipulation, data description and simulation languages. Run-time representation of program and data structures.

CMSC 419 Software Development Methods

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 246, EGRE 364. An introduction to the methodologies required to control the complexity involved in the development of large software systems. Students will apply software engineering techniques to an engineering problem. Students may not receive degree credit for both CMSC 419 and either CMSC 519 or CMSC 520. Not applicable toward the computer science major requirements.

CMSC 490 Research Seminar

Semester course; 1 lecture hour. 1 credit. Prerequisites: CMSC 312, 401, 403 and a writing intensive course outside the major. Discussion of research and presentation methods in computer science; and ethics in computer science. Each student will write a research paper and give at least one oral presentation.

CMSC 492 Independent Study

Semester course; variable; 2, 3, 4 credits per semester. Maximum four credits per semester; maximum total of six credits. Generally open only to students of junior or senior standing who have acquired at least 12 credits in the departmental discipline. Determination of the amount of credit and permission of instructor and department chair must be procured prior to registration of the course. The student must submit a proposal for investigating some area or problem not contained in the regular curriculum. The results of the student's study will be presented in a report.

CMSC 493 Computer Science Internship

Semester course; 3 credits. Prerequisite: CMSC 401 and CMSC 403. Approval of Computer Science Undergraduate Credentials Committee is required prior to registration. A minimum of 90 clock hours in an information technology environment. The internship is designed to provide practical experience in the computing industry. Student must present a written report reflecting upon internship experience.

May not be repeated for credit. Not applicable toward the computer science major requirements. Graded as pass/fail.

CMSC 502 Parallel Programming

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 312 and CMSC 401. Software and hardware mechanisms for providing mutual exclusion in uniprocessor and multiprocessor environments. Architectures of multiprocessor systems and metrics for their evaluation. Design and uses of parallel algorithms to solve concurrency problems in a distributed environment including message passing and remote procedure calls. Students will work in teams to design and implement parallel algorithms.

CMSC 504 Compiler Construction

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and CMSC 403. Review of programming language structures, translation, loading, execution and storage allocation. Compilation of simple expressions and statements. Organization of a compiler. Use of bootstrapping and compiler writing languages.

CMSC 505 Computer Architecture

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 301 with a grade of "C" or better and CMSC 311. Basic digital circuits combinational logic, data transfer and digital arithmetic. Memory and memory access, control functions, CPU organization, microprogramming, input/output interfaces.

CMSC 506/ENGR 526 Computer Networks and Communications

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 312. Theoretical and applied analysis of basic data communication systems; design of networks in the framework of the OSI reference model; Local and Wide Area Networks; performance analysis of networks; error control and security. Students will work in teams to design and implement a small computer network.

CMSC 508 Data Base Theory

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 401. Design and implementation of relational database systems. Emphasis is placed on entity-relationship diagrams, relational algebra, normal forms and normalization. Introduction to SQL. Discussion of physical level issues. Brief discussion of alternative database models such as the object-oriented, hierarchical and network models. Students will be required to complete a design project and give an oral presentation of the project.

CMSC 509 Artificial Intelligence

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and CMSC 403. Problem spaces, problem-solving methods, game playing, knowledge representatives, expert systems, natural language understanding.

CMSC 511 Computer Graphics

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and MATH 310. Presents mathematical techniques for picture development and transformation, curve and surface approximation and projections, graphical languages and data structures and their implementation, graphical systems (hardware and software).

CMSC 519 Software Engineering: Specification and Design

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 256 and 301, both with a grade of "C" or better, and CMSC 355. Overview of the software engineering process and software life cycle models. Detailed study of planning, analysis, specification and design phases. Students will work in teams to gain experience in prototyping and in developing specification and design documents and user documentation.

CMSC 520 Semiconductor and Quantum Electronics

Semester course; 3 lecture hours. 3 credits. Prerequisite: EGRE 301 or equivalent. Focuses on electronic structure, band structure calculations, optical absorption and emission, lasing in semiconductors, electron-photon interactions, heterostructures and nanostructured (quantum confined) devices.

CMSC 521 Introduction to the Theory of Computation

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 301 or the equivalent with a grade of "C" or better. An introduction to automata theory, formal languages and computability. Topics include finite automata, pushdown automata, Turing machines, decidability and computational complexity.

CMSC 525 Introduction to Software Analysis, Testing, and Verification

Semester course; 3 lecture hours. 3 credits. Prerequisites: CMSC 401 and 403. An introduction to concepts and techniques used in the analysis of software for certain properties. Using analytic results to derive test data and verify the correct implementation of programs. Flow graphs, fault/failure model, theoretical and practical limitations. Control flow, data flow and error flow

analyses. Testing strategies including random, structural, mutation and error flow. Software metrics.

CMSC 526 Theory of Programming Languages

Semester course; 3 lecture hours. 3 credits. Prerequisite: CMSC 403. An introduction to the formal semantics of programming languages, logic programming and functional programming. Topics include denotational semantics, attribute grammars, Backus Normal Form, Functional Programming, fixed point semantics, model-theoretic semantics and PROLOG.

CMSC 591 Topics in Computer Science

Semester course; 3 lecture hours. 3 credits. May be repeated for credit. Prerequisites may vary. Permission of the instructor required. Course is open to qualified undergraduates. Selected topics in computer sciences such as: Theory of data bases, information retrieval and artificial intelligence.

School of Medicine

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Heber H. Newsome

Dean and Professor of Surgery (1970)
B.S. 1958 Wake Forest University
M.S. 1962 Tulane University
M.D. 1962 Tulane University

The School of Medicine houses 26 basic health science and clinical departments that collectively address the varied missions of the school in education, research, service and the delivery of health care as a component of the VCU Medical Center. The school offers graduate and professional degrees including the M.D., certificate, M.S., M.P.H. and Ph.D. as well as advanced professional training (graduate medical education, continuing medical education) and interdisciplinary degree programs offered in conjunction with other schools within the university. Refer to the Graduate and Professional Programs Bulletin for more information regarding admission standards as well as curricula outlines. In addition to these offerings, the basic health science departments provide instruction in appropriate disciplinary areas in programs offered by the college and schools on both campuses of the university, including undergraduate and other professional training programs.

The breadth of these educational activities provide added opportunities for the development of collaborative activity in research as well as teaching excellence across departmental lines. The scope of research activity within the school provides a continuum of scholarship from the discovery of fundamental knowledge in biomedicine to the translation of such knowledge into effective modalities of treatment to improve health care and health care delivery. Programmatic outreach extends beyond institutional boundaries to include programs that join the faculty with community schools and other educational programs that partner the school

with Virginia Union University, Virginia State University and Hampton University, historically black universities in the region.

Mission

The mission of the School of Medicine encompasses education and research in biomedicine including applications providing a constant improvement of the quality of health care for all citizens of Virginia. By using innovative, scholarly activity to create new knowledge, providing better systems of medical and science education and developing more effective health care methods for diverse populations, the School of Medicine seeks to enhance the training of physicians and biomedical scientists. The School of Medicine shares the general objectives of VCU.

1. To maintain an environment of educational excellence that will attract students and faculty interested in an institution maintaining the highest academic standards.
2. To promote an educational atmosphere that will develop in students: (a) desire and interest in lifelong learning, (b) intellectual curiosity, and (c) excellence in skills and knowledge required for the solution of problems of health and disease for diverse populations.
3. To provide standards of clinical practice and scientific investigation that will serve students as examples throughout their professional careers.

The primary aim of the School of Medicine is to provide an academic environment appropriate for the education of its students, including undergraduate medical students, advanced-degree (graduate) students and graduate physician house officers, as well as continuing education directed toward the needs of practicing physicians. In the classroom, laboratory, clinic and hospital, the

faculty and students are brought together in teaching-learning experiences that promote scientific scholarship and personal growth in knowledge and professional skills applicable to careers in a diverse workplace environment.

The School of Medicine and its faculty have vested responsibilities for the advancement of knowledge through research and for service to the community through application of skills in biomedical knowledge, health care leadership and patient care. Therefore, the school shares with teaching the interdependent and almost inseparable objectives of research and service.

Faculty and facilities

The School of Medicine consists of 700 full-time faculty members, including affiliates, assisted by 630 residents and fellows and over 700 clinical voluntary faculty members. Programs of instruction and research are conducted on campus, at the McGuire Veterans Affairs Medical Center and at affiliated hospitals in an effort to expose the students to the variety of clinical disorders encountered in the eastern United States. Hospital facilities at the VCU Medical Center include both inpatient and outpatient facilities, and is licensed for 902 beds. In addition, the hospital at the McGuire Veterans Affairs Medical Center (600 beds) provides excellent patient care, training and research opportunities for the School of Medicine through its associated programs.

Courses

The courses listed below include those for which undergraduate registration is relatively common and are listed here as a convenience. Other courses taught by departments in the School of Medicine are listed on the Web at <http://www.vcu.edu/bulletins>; any constraints or limits on registration are included in the detailed course description.

Courses in anatomy (ANAT)

ANAT 301 Head and Neck Anatomy for Dental Hygienists

Semester course; 2 lecture and 1 seminar hours. 3 credits. Prerequisite: Admission to the Dental Hygiene Program. An overview of head and neck anatomy that examines the major osteological, neural, muscular, vascular and visceral features. Lectures will be supplemented by textbook, self-study packages and by brief laboratory exercises that provide hands-on exposure to these major anatomical features.

ANAT 302 Microscopic Anatomy (Dental Hygiene)

Semester course; 2 lecture hours and 2 laboratory hours. 3 credits. A lecture course in the microscopic anatomy of general body tissues and the oral cavity.

Courses in biochemistry and molecular physics (BIOC)

BIOC 403/CHEM 403 Biochemistry

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, or equivalents with permission of instructor. A presentation of structural biochemistry, enzymology, biophysical techniques, bioenergetics and an introduction to intermediary metabolism.

BIOC 404/CHEM 404 Advanced Topics in Biochemistry

Semester course; 2 lecture hours. 2 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L, 102L and CHEM 301-302, and CHEM/BIOC 403, or equivalents with permission of instructor. Presentations of cellular, molecular and structural aspects of biochemistry. Selected topics of biomedical research.

BIOC 501 Biochemistry (Dentistry)

Semester course; 5 lecture hours plus clinical correlations. 3 credits. Prerequisite: Organic chemistry, three credits of physical chemistry, or permission of instructor. A presentation of structural biochemistry, intermediary metabolism, physiological chemistry, and nutrition as part of the fundamental background of modern dentistry. Four clinical correlation workshops complement the lecture presentations.

Courses in human genetics (HGEN)

HGEN 516/BIOL 516 Population Genetics

Semester course; 3 lecture hours. 3 credits. Genetic and ecological factors affecting normal and abnormal variation within and between populations of organisms.

Courses in microbiology and immunology (MICR)

MICR 365 Infection and Immunity (Dental Hygiene)

Semester course; 2 lecture hours. 2 credits. A study of infectious diseases and the immune system of humans with emphasis on the distribution properties and roles of pathogenic microorganisms and the varied responses of the host, with emphasis on oral pathologies. Principles of prevention, control, and chemotherapy of infectious diseases are major components of the course.

Courses in pathology (PATH)

PATH 445/FRSC 445 Forensic Toxicology

Semester course; 3 lecture hours. 3 credits. Prerequisites: CHEM 101-102, CHEZ/FRSZ 101L; CHEM 301-302 and CHEZ 301L. Provides a comprehensive overview of the basic principles of toxicology and the practical aspects of forensic toxicology. Students will learn to define the toxic agents most commonly resulting in legal problems in U.S. society and also the process by which the U.S. judicial system is aided by scientific investigation.

Courses in pharmacology and toxicology (PHTX)

PHTX 400 Drugs and their Actions

Semester course; 3 lecture hours. 3 credits. Prerequisites: Junior or senior or permission of instructor. This course is a general survey of pharmacology and related disciplines. The history and basic principles are presented followed by discussions of neuropharmacology, psychoactive drugs, drugs of abuse, immunopharmacology, basic toxicology, drug design, drug development, autonomic pharmacology, cardiovascular pharmacology, and endocrine pharmacology, as well as selected topics including scientific ethics, molecular pharmacology, and behavioral pharmacology.

PHTX 441 Pharmacology (Dental Hygiene)

Semester course; 5 lecture hours. 5 credits. A didactic course designed to emphasize the principles of pharmacology and pain control and the rationale of drug actions, uses, and adverse effects.

Courses in physiology (PHIS)

PHIS 206 Human Physiology

Semester course; 3 lecture hours. 3 credits. Prerequisite: A "C" grade or better in BIOL 101 and 101L or equivalent. Functioning of the human body with emphasis on experimental procedures. Not applicable to the biology major.

PHIZ 206L/BIOS 206L Human Physiology

Laboratory

Semester course; 2 laboratory hours. 1 credit. Pre- or corequisites: PHIS 206. Functioning of the human body with emphasis on experimental procedures. Not applicable to the biology major.

PHIS 309 Introductory Quantitative Physiology I

Semester course; 3 lecture hours and 3 laboratory hours. 4 credits. Prerequisite: Calculus at the level of MATH 200 and MATH 201. The course is intended for majors in Biomedical Engineering. Other students may enroll with permission of the instructor. This course is a survey course in physiology with emphasis on physical principles. It is a systems analysis of cellular anatomy, physiology and biochemistry which leads into analysis of the nervous system, musculoskeletal system and the digestive system. It is meant to be taken as part of a two-semester series with PHIS 310.

PHIS 310 Introductory Quantitative Physiology II

Semester course; 3 lecture and 3 laboratory hours. 4 credits. Prerequisites: Calculus at the level of MATH 200 and MATH 201 and PHIS 309. The course is intended for majors in biomedical engineering. Other students may enroll with permission of the instructor. This course is the second semester of a survey course in physiology with emphasis on physical principles. It includes a systems analysis of the cardiovascular, respiratory, renal and endocrine systems. It is meant to be taken as part of a two-semester series with PHIS 309.

School of Nursing

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Nancy F. Langston

Dean (1991)
B.S.N. 1966 University of Arkansas
M.N. 1972 Emory University
Ph.D. 1977 Georgia State University

Inez Tuck

Associate Professor and Associate Dean of Doctoral Programs (1997)
B.S.N. 1970 A&T State University, N.C.
M.N. 1972 University of Florida, Gainesville
Ph.D. 1980 University of North Carolina, Greensboro
M.B.A. 1995 University of Tennessee, Knoxville

Janet B. Younger

Professor and Associate Dean for Master's and Undergraduate Programs (1984)
B.S. 1967 Medical College of Virginia
M.Ed. 1970 University of Virginia
M.S. 1972 Virginia Commonwealth University
Ph.D. 1984 University of Virginia

Anthony J. DeLellis

Assistant Dean for Administration (1985)
B.A. 1970 University of Delaware
M.A. 1973 Central Michigan University
Ed.D. 1977 University of Virginia

The School of Nursing originated in 1893 as part of the University College of Medicine. Since then, the educational program evolved to multiple programs at the baccalaureate-, master's- and doctoral-degree levels. The undergraduate program contains bachelor of science degree options for traditional students and for registered nurses seeking completion of a bachelor of science degree. The School of Nursing is a leader in nursing education in Virginia.

Programs

Bachelor of Science, certificate, Master of Science, post-master's certificate and Doctor of Philosophy programs are offered

through the School of Nursing. For information regarding the graduate programs, see the Graduate and Professional Programs Bulletin available on the Web: <http://www.vcu.edu/bulletins>.

Complete information regarding curriculum and admissions may be obtained by writing to the Virginia Commonwealth University, School of Nursing, Office of Enrollment and Student Services, P.O. Box 980567, Richmond, VA 23298-0567.

Facilities and resources

The faculty and administrative offices of the school are housed in the Nursing Education Building, 1220 E. Broad St. Additionally, this building has a nursing clinical resource laboratory, computer laboratory and classrooms equipped with a full range of audiovisual equipment. Both graduate and undergraduate courses also are scheduled in other classrooms on campus.

The clinical laboratories for nursing courses are conducted at the VCU Medical Center and in numerous other hospitals and health agencies in the area. Students are given a diversity of experiences in hospital and community-oriented nursing.

Accreditation

The baccalaureate degree program in nursing is accredited by the National League for Nursing Accrediting Commission, 61 Broadway, 33rd Floor, New York, NY 10006, (800) 669-1656, ext. 153. The undergraduate program is approved by the Virginia Board of Nursing, and graduates are eligible to take the NCLEX RN registered nurse licensing examination.

The master's degree program is accredited by the National League for Nursing Council of Baccalaureate and Higher Degree Programs.

Nursing alumni

All graduates are eligible for membership in the Nursing Alumni Division of the Medical College of Virginia Alumni Association of VCU. The purpose of the division is to support and promote the School of Nursing. The division also provides support within the university to promote and encourage the development of nursing services of the highest possible quality, to stimulate professional growth, and to promote cooperation and fellowship among nursing alumni and students.

Annual lectureships

Outstanding scholars are brought to the campus through a variety of resources. Students in the School of Nursing have access to special programs of an intellectual and cultural nature on both campuses of the university.

The Annual Nursing Lectureship, established in 1966 by contributions from alumni and friends of the School of Nursing, brings to the campus each year a person of national stature in the field of nursing. Alumni and faculty plan and implement the lectureship, which serves as an open forum to many public speakers in the health fields.

The Yingling Visiting Scholar Program was established in 1981 by alumni and friends of Dr. Doris B. Yingling, upon her retirement, in recognition of her many years of service as dean of the School of Nursing. The fund supports visits by eminent scholars to the School of Nursing.

School honors and awards

Sigma Theta Tau

The School of Nursing inducted its first members in the fall of 1976. This local honor society was accepted as a chapter of the international nursing honor society,

Sigma Theta Tau, in fall 1977. The chapter, known as Gamma Omega, installed its first members in fall 1978. The purposes of Sigma Theta Tau are to recognize superior achievement and leadership qualities, to foster high professional standards and to strengthen commitment to the ideals and purposes of the profession.

Becky Godwin Fund

This fund was established by former Dean Yingling in 1978 following completion of the Honorable Mills E. Godwin Jr.'s second term as governor of Virginia. The fund was established in memory of former Governor and Mrs. Godwin's only daughter, Becky. The interest on the endowment contributed to the School of Nursing by Yingling provides funds to enhance student professionalism in nursing for individuals enrolled in the undergraduate and graduate programs. Awards from the fund are made on an annual basis by the dean.

Yingling Senior Achievement Award

Gifts to the institution to honor former Dean Yingling have been used to establish an annual award to a senior student in the School of Nursing. Recognition is based on outstanding leadership ability and potential professional growth as determined by a selection of faculty and students.

Mable Montgomery Award

This award was established through gifts of faculty and students in honor of Miss Mable E. Montgomery, executive secretary of the Virginia Board of Nursing, 1949-70. The award is given annually to a senior student and a faculty member. Leadership, excellence in nursing and outstanding personal qualities are considered in selecting the recipients.

Marguerite G. Nicholson Award

This award was established by alumni and friends of the school to honor a beloved alumna and former faculty member. The award is presented annually to a graduating senior student who best demonstrates the humanitarian qualities of unselfishness, helpfulness to others, consideration, humility and loyalty to the school.

Mayme B. Wilson Lacey Award

Established by alumni of the former St. Philip School of Nursing, this award honors an outstanding alumna of the school who served for many years as assistant director of nursing services for VCU Health System's MCV Hospitals. The recipient, a senior nursing student, must be a well-rounded individual committed to nursing as a profession, who gives consistently good nursing care, has the ability to work well with the health team and shows promise of supporting professional organizations.

Temple Memorial Award

The senior and junior classes, 1976-77, and the alumni from the School of Nursing established this award in memory of President and Mrs. T. Edward Temple. The award is given annually to a graduating student in the master's degree program. The recipient must possess characteristics that demonstrate exemplary performance in the advocacy role for the consumer of health care services and for the nursing profession.

Martha M. Borlick Research Award

This award was established in 1980 by an alumna in honor of Dr. Martha M. Borlick, who served as chair of the Department of Community Health Nursing from 1970-78. The annual award honors a graduate student in nursing research.

Registered Nurse Student Award

The Registered Nurse Student Award is given in recognition of performance and achievement within the School of Nursing. The award is presented annually to a graduating senior who demonstrates excellence in clinical expertise, leadership and personal qualities. This award is given with funds provided by faculty in recognition of the increasing number of registered nurses returning for baccalaureate degrees.

Student Nurses' Association Award

Initiated by members of the organization, this award is given in recognition of outstanding participation in the Student Nurses' Association. The award is presented to a senior NSA member who has demonstrated leadership, dedication and enthu-

siasm for the nursing profession through involvement in the organization.

Financial assistance

Financial assistance is available. Information may be obtained from the Web at <http://www.vcu.edu/enroll/finaid> or by writing to Virginia Commonwealth University, Office of Financial Aid, P.O. Box 980244, Richmond, VA 23298-0244.

Critical Care Nursing Certificate Program

The Critical Care Nursing Certificate program is composed of four courses, Critical Care Nursing I and II, Critical Care Nursing Technologies and Critical Care Nursing Practicum. The program consists of 12 credit hours. Certificate-seeking students will be admitted in the fall. Nurses with R.N. licensure may enroll as special students up to a maximum of six credits.

Admission requirements

Applicants must (1) have R.N. licensure or senior status in the VCU School of Nursing, (2) be eligible for re-admission to or be in good standing at the last college attended and (3) have a minimum GPA of 2.5 based on a 4.0 scale. Applicants should submit a VCU undergraduate application containing (1) post-secondary transcripts, (2) resume and (3) three professional references including one from a direct supervisor. Preference will be given to VCU Health System employees and applicants with at least one year acute care experience.

Bachelor of Science in Nursing program

The School of Nursing has three tracks in the baccalaureate program: (1) the traditional, (2) the accelerated B.S. and (3) the R.N.-B.S. completion.

Admissions

Applications for admission are welcome from men and women from any cultural or ethnic background who are interested in a career in professional nursing. Admission into the School of Nursing is competitive. Freshmen should follow the university guidelines in the "Admission to the University"

chapter of this bulletin. Minimum admission criteria require that an applicant must be eligible for re-admission to or in good standing at the last college attended; have a minimum TOEFL score of 550 if they do not use English as their natural language; and have a minimum GPA of 2.5 based on a four-point scale. Grades lower than "C" in any of the required courses are not acceptable. Admission GPA is calculated on courses required for the School of Nursing. Applicants should submit SAT, ACT, MAT or GRE scores. All applicants to the undergraduate program must have a minimum of 700 (combined original norm) or 830 (recentered norm) on the SAT or a comparable score on the GRE, MAT or ACT to be considered for admission to the program. Applicants are required to complete an application and submit the required transcripts, references and standardized test scores by Dec. 1 for the accelerated B.S. program, Jan. 15 for the traditional program and March 15 for the R.N.-B.S. program. Applications may be obtained from Virginia Commonwealth University, Office of Undergraduate Admissions, P.O. Box 980632, Richmond, VA 23298-0632, (804) 827-0152 or (800) 828-9451. Applicants to the R.N.-B.S. program are not required to submit standardized test scores.

Applicants for admission to the undergraduate program who wish to be considered for early acceptance will be considered if the following criteria are met: (1) submission of the complete application by Nov. 1, (2) GPA of at least 3.4 and (3) SAT (or equivalent) scores of at least 1100 on recentered scores.

Applicants who hold a baccalaureate degree from an accredited institution in another discipline, but are not registered nurses, may apply to either the traditional or accelerated B.S. program.

Applicants who are registered nurses and who seek a baccalaureate degree apply to the R.N.-B.S. Completion Program. In addition to traditional admission criteria, applicants must meet the following requirements to be considered: (1) be graduates of state-approved diploma or associate degree programs in nursing and (2) hold a current Virginia license to practice professional nursing.

In addition to taking courses, R.N. students may establish credit toward the baccalaureate degree in several ways: (1) by portfolio; (2) through transfer of credit from other colleges; and (3) through proficiency

examinations using the College Level Examination Program for general education and through National League for Nursing standardized examinations for anatomy, physiology, microbiology and nutrition. Information about the CLEP tests may be obtained from the Web, www.clep.org, or from the CLEP Administrator, Office of Interdisciplinary Studies and Special Student Advising, Virginia Commonwealth University, P.O. Box 843079, Richmond, VA 23284-3079, (804) 828-8420. CLEP tests are given on a monthly schedule, and arrangements to be tested may be made one month prior to the testing date. Subject examinations are available in multiple areas as listed in information available for the College Entrance Examination Board. Students may earn full course credit by examination for general education courses.

Registered nurses who have achieved baccalaureate degrees in another discipline may apply to the master of science program in nursing.

Curriculum

The applicant is responsible to seek advice from the School of Nursing on courses taken prior to admission. Students transferring from another college or university will enter the program as sophomores or, on a very limited basis, as juniors, which requires attending a 10 week summer session.

Fifty-six semester hours of general education courses are required for graduation.

General education requirements

1. Communicating

Prerequisites: English composition (three credits) and ENGL 200 or its equivalent

2. Ethics

Prerequisite: Ethics or philosophy (three credits)

3. Quantity and form

Prerequisite: College-level math, statistics or algebra (three credits)

4. Science and technology

Prerequisite: Biology (four credits), anatomy (four credits), physiology* (four credits), microbiology* (four credits), nutrition (three credits), laboratory science** (four credits)

5. Interdependence

Prerequisite: Sociology (three credits), humanities elective, e.g. foreign language, history (six credits)

6. Visual and performing arts

Prerequisite: A course in the arts from the approved list for non-School of the Arts majors provided in the "School of the Arts" chapter of this bulletin (three credits)

7. Humanities and social sciences

Prerequisites: Psychology (three credits), developmental psychology (three credits) and general electives (three credits)

* Physiology and microbiology credits must be earned within 10 years preceding admission.

** If high school chemistry or its equivalent is not passed with a "C" or better, the laboratory science must be chemistry.

Traditional program

Honors sections are available for a number of courses. A typical curriculum for the traditional program is as follows:

Freshman year, fall semester	credits
Composition	3
Biology	4
Mathematics or statistics	3
Psychology	4
Sociology	3
VCU1 101 Introduction to the University	1
	<hr/>
	18

Freshman year, spring semester

NURS 101 Introduction to Nursing	1
Nutrition	3
Humanities	3
Second laboratory science or LFSC 101 Introduction to Life Sciences*	3-5
Anatomy	4
	<hr/>
	13-16

Sophomore year, fall semester

NURS 261 Health Assessment for Nursing Practice	3
Developmental psychology	3
Physiology	4
Philosophy/ethics/logic/critical thinking	3
NURS 201 Concepts of Nursing	3
	<hr/>
	16

Sophomore year, spring semester

Visual/performing arts	3
NURS 202 Technologies of Nursing Practice	3
Microbiology	4
ENGL 200 Writing and Rhetoric Workshop II	3
NURS 370 Theory and Research in Clinical Practice	3
	<hr/>
	16

Junior year, fall semester

NURS 365 Nursing Science I	3
NURS 335 Nursing of Women	6

NURS 345 Nursing of Children Humanities	6 3
	18

Junior year, spring semester

NURS 366 Nursing Science II	3
NURS 325 Nursing of Adults I	6
NURS 355 Psychiatric-mental Health Nursing	6
	15

Senior year, fall semester

NURS 425 Nursing of Adults II	6
NURS 485 Managerial Theory for Nursing Practice	3
NURS 486 Nursing Leadership and Management Practicum	2
Upper division or nursing elective	3
	14

Senior year, spring semester

NURS 415 Community Health Nursing	6
NURS 475 Professional Issues in Nursing	3
NURS 496 Clinical Practicum	3
	12

* Students who have not satisfactorily (grade of "C" or above) completed high school or developmental chemistry are not eligible to take the LFSC course but must take a general chemistry course with a laboratory to meet the science requirements.

Accelerated B.S. curriculum plan

Prerequisites include a baccalaureate degree from an accredited college or university. The general education requirements are the same as for the traditional B.S. program, but will be met with the previous degree. Additional prerequisites include microbiology (four credits), anatomy and physiology (five to eight credits), English (six credits) and developmental psychology (three credits).

The following is a typical curriculum plan for the accelerated B.S. student:

Summer 1

NURS 201 Concepts of Nursing	3
NURS 202 Technologies of Nursing Practice	3
NURS 261 Health Assessment for Nursing Practice	3

Fall 1

NURS 325 and NURS 355 or NURS 335 and NURS 345 (Junior-level clinical courses)	12
NURS 365 Nursing Science I	3
NURS 485 Managerial Theory for Nursing Practice	3

Spring 1

NURS 335 and NURS 345 or NURS 325 and NURS 355	12
NURS 366 Nursing Science II	3
NURS 370 Theory and Research in Clinical Practice	3

Summer 2

NURS 425 Nursing of Adults II	6
NURS 486 Nursing Leadership and Management Practicum	2

Fall 2

NURS 415 Community Health Nursing	6
NURS 496 Clinical Practicum	3
NURS 405 Nursing in Long-term Care	3
NURS 475 Professional Issues in Nursing	3

Total credits

68

R.N.-B.S. Completion Program

The general education requirements are the same for the R.N.-B.S. Completion Program. Fifty-six credits of general education courses are required for graduation. The following is a typical curriculum plan for the R.N.-B.S. completion student:

Fall semester

NURS 302 Dynamics of Professional Nursing Practice	4
NURS 261 Health Assessment for Nursing Practice	3
NURS 370 Theory and Research in Clinical Practice	3

Spring semester

NURS 415 Community Health Nursing	6
NURS 405 Nursing in Long-term Care	3
Upper division elective	3

Fall semester

NURS 485 Managerial Theory for Nursing Practice	3
NURS 486 Nursing Leadership and Management Practicum	2
NURS 475 Professional Issues in Nursing	3
Upper-division credits will be awarded after successful completion of NURS 302	36

Total required nursing courses

66

Commuting and community practice

Students are assigned to a variety of hospitals and health agencies. Occasionally, these assignments may be during evening hours or on the weekend. Transportation is sometimes available to reach these assignments, but use of an automobile is often necessary, especially in community health nursing. Transportation costs vary widely each semester and may range from very little to more

than \$100. Students who anticipate need of financial assistance for transportation costs should apply to the Office of Financial Aid in advance.

Academic regulations

Progression

The minimum passing grade in the general education courses and the nursing major is a "C." Any nursing student who receives less than a "C" in any course required for the B.S. degree must repeat the course with a "C" or better. Progression to the next level of clinical courses is based upon satisfactory completion of courses of the current year and a cumulative GPA of not less than 1.91. Courses at the next level in the nursing major without a clinical component may be taken before students officially progress to that level. Appeal of all progression issues is made to the Undergraduate Admission, Policy and Progression Committee. The clinical laboratory grading system is satisfactory or unsatisfactory. Unsatisfactory clinical application results in a grade of "F" for the course.

A student may fail a clinical course prior to the completion of the course under certain circumstances. A student whose conduct is judged to be clinically unsafe may be dismissed at any time from a clinical unit. Unsafe clinical performance is defined as behavior that is actually or potentially injurious to patients or staff and is out of the range of ordinary student mistakes. Dismissal for the remainder of the course results in a failing grade for the course as does any failure to meet course objectives. Further, any student who has been convicted of a felony may be ineligible for licensure as a registered nurse in Virginia. Students or applicants should address any questions of this nature directly to the Virginia Board of Nursing.

There are additional requirements for satisfactory progression in the School of Nursing and all students are responsible for compliance with additional school policies, listed in the School of Nursing Policy Manual, available on the School of Nursing home page (<http://www.nursing.vcu.edu>).

Readmission

Students dismissed from the school or university who wish to return must reapply

for admission and be considered in relation to all other applicants. The applicant must then meet all criteria for admission and graduation that apply at readmission. See the School of Nursing Policy Manual, available on the School of Nursing Web site: <http://www.nursing.vcu.edu>.

Completion of degree requirements – time limit

Once the student enrolls in the School of Nursing, the degree requirements must be completed within six calendar-years. The credentials and programs of a candidate unable to meet this requirement may be evaluated by the Undergraduate Admission Policy and Progression Committee upon request. Such a candidate may have to meet additional requirements established during the interval since matriculation. All students must be enrolled in the School of Nursing for the final semester of study in order to graduate.

CPR

Students entering the School of Nursing must be certified in cardiopulmonary resuscitation (CPR) before they begin their first clinical nursing course prior to matriculation in the sophomore year. CPR certification must include:

- one- and two-rescuer CPR,
- CPR for infants, children and adults, and
- rescue breathing for choking infants, children and adults.

Students are required to show evidence of CPR certification valid to the end of academic year to the Office of Enrollment and Student Services before the first day of class each year. Those who are not certified will not be allowed to participate in the clinical laboratory and will be considered to have an unexcused absence.

TB screening

All nursing students will have an annual TB screening. Students are required to show evidence of this annual screening. Those students who have not had their annual screening will not be allowed to participate in the clinical laboratory and will be considered to have an unexcused absence.

Hepatitis B vaccination

All nursing students enrolled in clinical courses are required to complete the Hepatitis B vaccination series or to provide proof of a positive antibody titer. The first injection of the series must be received prior to matriculation into the School of Nursing.

Separation from the school

A student who wishes to withdraw from the School of Nursing should discuss the plans with the associate dean for the master's and undergraduate programs. Before leaving the school, the proper forms must be obtained from the registrar and completed by the student. Failure to follow this procedure may prevent readmission to the School of Nursing at a later date.

Graduate degree programs

The School of Nursing offers programs of study leading to the master of science, post-master's certificate and doctor of philosophy degrees. See the Graduate and Professional Programs Bulletin for a detailed description of all graduate programs and policies.

Master's program

The master's program is designed to offer general core content requisite for advanced practice in nursing as well as content aimed at preparation in a specialty concentration. The program is designed to prepare individuals for certification as nurse practitioners and/or clinical nurse specialists. The specialty areas are: adult health acute care, adult health primary care, child health, family health, nursing administration and leadership, integrative psychiatric mental health and women's health.

Accelerated Second Degree program

In response to the growing number of individuals with bachelor's degrees in other disciplines who are now seeking a career in nursing, the school offers a graduate program whereby an individual can earn a bachelor's and master's degree in nursing. Students in the Accelerated Second Degree program take courses in the undergraduate and master's program until licensure as a R.N. is obtained. It is anticipated that this will occur at the end of the fifth semester.

The master's degree is awarded after two to four semesters of additional study depending on the area of concentration. This program begins in the summer (see section entitled, "Master's Program").

R.N.-M.S. track

The School of Nursing offers a track in the master's program designed for students who have their R.N. but have not completed the baccalaureate degree. The track includes elements of the R.N.-B.S. program and moves the student expeditiously into M.S. program course work. The student completes the general education requirements for the baccalaureate degree prior to entering the R.N.-M.S. track. The track provides the additional courses in the major required for the degree and a B.S. degree is awarded after the completion of 30 credit hours of specified course work. All master's program concentrations are available to students admitted to this track.

Admission requirements

To be considered for admission, applicants must have:

- an associate's degree or diploma in nursing from an accredited program.
- transcripts reflecting completion of a health assessment course comparable to NURS 261 and a community health nursing course comparable to NURS 415.
- acceptable scores on the Graduate Record Examination, including all three components: verbal, quantitative and analytical.
- TOEFL scores of greater than 550 for international applicants.
- a current, unrestricted registered nurse license in state, the District of Columbia, or a U.S. possession or territory, or an equivalent credential in another country.
- passing scores on the Qualifying Exam of the Commission on Graduates of Foreign Nursing Schools (CGFNS) prior to applying if the applicants are graduate of foreign nursing schools and are licensed outside of the United States. Applicants must include the

exam report with their application materials.

- professional liability insurance (not required but highly recommended).

Prerequisite courses

The following will be accepted in transfer only upon a rigorous evaluation of each course for comparability to the B.S. program using defined criteria developed by expert faculty in community health and health assessment. Applicants must provide a copy of the course syllabi and a written statement of how the course met the objectives of the VCU courses. VCU course objectives will be provided to applicants. Otherwise the following courses will be taken prior to beginning the R.N.-M.S. track:

	credits
NURS 261 Health Assessment for Nursing Practice or comparable course	2-3
NURS 415 Community Health Nursing or comparable course	3

Courses required for the B.S. degree

General education requirements (taken prior to admission to the R.N.-B.S. track)

Communications	credits
Writing or composition	6

Humanities	
Philosophy, ethics, logic or critical thinking	3
General humanities	6

Arts	
Visual or performing art	3

Social sciences	
Psychology	3-4
Developmental psychology	3
Sociology	3

Mathematics	
Statistics	3

Sciences	
Laboratory sciences*	8
Anatomy and physiology	8
Microbiology	4
Nutrition	3

Electives 2-3
Any extra credit from required areas, computer science or other liberal arts courses. Not more than three credits in physical education or activity courses.

Total general education 56

Nursing courses

NURS 302 Dynamics of Professional Nursing Practice	4
NURS 370 Theory and Research in Clinical Practice	3
NURS 475 Professional Issues in Nursing	3
NURS 485 Managerial Theory for Nursing Practice	3
Total undergraduate nursing credit	13

M.S. core curriculum

(credits shared for B.S. and M.S. degrees)	
NURS 501 Advanced Professionalism I	1
NURS 502 Pharmacotherapeutics	3
NURS 503 Advanced Nursing Practice: Psychosocial	3
NURS 504 Advanced Nursing Practice: Biological	3
NURS 508 Advanced Nursing Practice: Systems	3
NURS 511 Health Assessment for Advanced Nursing Practice	3
NURS 512 Advanced Nursing Science	3
Total master's credits applied to B.S. degree	22*

* Not all of these courses are required in each master's program concentration. However, a student must take at least 17 of these credits to meet B.S. degree requirements. Remainder of curriculum (at least 30 credits) is consistent with all requirements of current M.S. program and specific to the concentration chosen.

Post-master's Certificate Program

Individuals with a Master of Science in Nursing may take courses in the master's program in order to be eligible for the certification exam for advanced nursing practice as a nurse practitioner. The plan of study is dependent on prior master's work. Areas of study offered are: adult health, child health, family health, women's health, nursing systems, psychiatric mental health and spirituality.

Doctoral Program

The goal of the doctoral program in nursing is the preparation of scholars to develop knowledge in the discipline of nursing. Substantive areas of study are: healing, risk and resilience, health systems and immunocompetence.

Department of Adult Health Nursing

D. Patricia Gray

Associate Professor and Department Chair (1996)
B.S. 1974 University of North Carolina, Charlotte
M.S. 1976 University of North Carolina, Chapel Hill
Ph.D. 1982 University of Utah

Department of Maternal Child Nursing

Rita H. Pickler

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M.S.N. 1981 University of North Carolina, Greensboro
Ph.D. 1990 University of Virginia
Post-master's Certificate 1998 Virginia Commonwealth University

Department of Integrative Systems

Inez Tuck

Associate Professor and Department Chair (1997)
B.S.N. 1970 Agricultural & Technical State University, Greensboro
M.N. 1972 University of Florida, Gainesville
Ph.D. 1980 University of North Carolina, Greensboro
M.B.A. 1995 University of Tennessee, Knoxville

Courses in nursing (NURS)

The following list is of courses in the nursing major. For all courses with a clinical laboratory, the laboratory is designed to develop the clinical and critical thinking skills needed to use the nursing process with specific population groups.

NURS 101 Introduction to Nursing

Semester course; 1 lecture hour. 1 credit. Offered: Spring. Restricted to nursing majors. Introduces future nurses to the process and practice of nursing in the modern health care environment. Interaction with staff nurses in multiple practice environments illuminates "real world" nursing in the "ideal" learning environment. Combines discussions and field experiences.

NURS 201 Concepts of Nursing

Semester course; 3 lecture hours. 3 credits. Offered: II, S. Pre- or corequisite: NURS 261. Provides a foundation for all clinical nursing courses. Content focuses on human responses to health and illness and those concepts basic to a caring relationship including nursing process, communication, patient teaching,

professional responsibility and systems. Introduces roles of technology in modern health care environments, including management of patient information.

NURS 202 Technologies of Nursing Practice

Semester course; 6 laboratory hours. 3 credits. Offered: II, S. Pre- or corequisites: NURS 201, NURS 261. Studies and applies techniques basic to all nursing practice. Includes cognitive, psychomotor affective and interpersonal techniques organized through the nursing process to provide nursing care based on health needs and human responses. Also, focuses on application of principles and demonstration of beginning skills in caring relationships; provides opportunities for practice and demonstration of selected skills in the laboratory and in clinical settings; and introduces tools of patient information management and patient monitoring.

NURS 261 Health Assessment for Nursing Practice

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Offered: I, S. Prerequisite: Admission to the nursing program. Pre- or corequisite: Anatomy. Provides the student with the knowledge and skills necessary to enact the first phase of the nursing process, assessment or the collection of patient specific data and the formulation of a patient database as the foundation of the care planning process. Demonstrates specific techniques of patient interview and physical examination skills. Focuses on the healthy adult client. Introduces students to a variety of assessment framework to be used with a diversity of patient populations in acute care, ambulatory and community settings.

NURS 302 Dynamics of Professional Nursing Practice

Semester course; 3 lecture and 1 clinical laboratory hour. 4 credits. Offered: I. Prerequisite: Admission to undergraduate nursing program. Provides a transition from the student's initial education into the baccalaureate program. Expands knowledge of concepts and theories of nursing practice using a process aimed at evaluating and validating clinical practice in the student's work setting. Introduces information technology in modern health care and academic environments.

NURS 305 Knowledge Validation by Portfolio

Semester course; 3 credits. Offered: II. Culminates in submission of a portfolio for validation of course-specific knowledge and evaluation for full or partial credit. Elective. RN students only. Involves self-assessment of prior learning for RN. Requires correlation of experiential and theoretical knowledge with objectives of selected nursing courses.

NURS 325 Nursing of Adults I

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Prerequisite: Completion of 200-level required nursing courses. Focuses on the client with acute and chronic physical illnesses that have relatively stable trajectories. Examines principles of rehabilitation and concepts relevant to the care of the elderly. Provides theoretical foundations for nursing management and relates therapeutic regimens. Develops clinical decision making and selected specialized technical skills in the provision of care to adults in a variety of settings including specialty areas such as the operating room.

NURS 335 Nursing of Women

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Prerequisite: Completion of 200-level nursing course. Examines the health needs of women across the life span with an emphasis on the health needs of the childbearing family. Applies nursing process, theory and research with an emphasis on the

development of critical thinking skills in the diagnosis and treatment of human responses to health needs of women, neonates and families. Practices clinical skills and applies theoretical knowledge in selected ambulatory care settings for women's health and post-discharge care, and hospital settings for antenatal, intrapartum, post-partum and neonatal experiences.

NURS 345 Nursing of Children

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Prerequisite: Completion of 200-level required nursing courses. Examines the health needs of children within the context of the family system, environment, developmental capability, stress and adaptation. Focuses on application of the nursing process, development of communication skills, and critical thinking when giving nursing care to well and ill children. Reinforces current theory and research on children and their families in clinical experiences. Reinforces standards of care for both well and ill children and their families.

NURS 355 Psychiatric-mental Health Nursing

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Prerequisite: Completion of 200-level required nursing courses. Presents a systems approach to understanding psychiatric-mental health nursing. Emphasizes the art of psychiatric nursing by developing therapeutic relationships with persons who are in the mental health system. Applies science of psychiatric nursing by identifying theories used in nursing interventions. Focuses upon principles and techniques of communication with individuals and groups. Recognizes human responses to selected major mental disorders. Identifies intervention strategies for primary, secondary and tertiary levels of prevention.

NURS 365 Nursing Science I

Semester course; 3 lecture hours. 3 credits. Prerequisites: Anatomy and physiology. Integrates the foundations of nursing diagnosis and interventions derived from pathophysiology, biochemistry and pharmacology for selected human systems.

NURS 366 Nursing Science II

Semester course; 3 lecture hours. 3 credits. Prerequisites: Anatomy, physiology and microbiology. Integrates the foundations of nursing diagnoses and interventions derived from pathophysiology, biochemistry and pharmacology for selected human systems.

NURS 370 Theory and Research in Clinical Practice

Semester course; 3 lecture hours for undergraduate nursing students; 2 lecture hours for graduate students who have not taken a research undergraduate course. Variable credit: 3 credits for undergraduates; 2 credits for graduate students. Designed to promote understanding of the role of theory and research in the development of nursing as a profession. Focus on three primary areas: (1) developing the language necessary to understand theory and research; (2) analyzing the relevance of theory and research to nursing practice; and (3) beginning to understand the research process. Skill in the ability to critically read and evaluate nursing research literature for application to clinical practice also will be emphasized.

NURS 396 Nursing Internship

Semester course; 120 clinical hours per credit. Variable credit. Pre- or corequisites: Completion of junior-level clinical course or equivalent. Some units may require enrollment for three credits. Enrolled students must meet requirements for employment at the VCU

Medical Center, including one week of paid orientation. Provides combination supervised clinical experience and paid work experience in selected settings of the VCU Medical Center. Many of these settings are not available in traditional curriculum. Introduces students to the work life of a nurse.

NURS 405 Nursing in Long-term Care

Semester course; 3 lecture hours. 3 credits. Prerequisite: Senior status. Focuses on the care management of patients across the life span who require long-term care. Integrates pathophysiologic presentation of selected chronic, long-term conditions with psychophysiologic aspects of patient care, including pharmacologic and non-pharmacologic treatments. Includes interdisciplinary management of the disease process and the patient, family and community response. Addresses financial impact, health care delivery systems and health policy implications. Incorporates long-term therapeutic regimens into the illness trajectory.

NURS 415 Community Health Nursing

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Pre- or corequisite: Completion of all 300-level required nursing courses. Builds on knowledge and practice skills from prior nursing education and develops nursing competencies for care of communities and targeted populations based on the core functions of public health. Concentrates on an epidemiological approach to population-focused nursing through community assessment, evaluation of the effects of contemporary issues and health policy on the public's health. Directs service-learning projects to prevent disease and promote and preserve the health of populations at risk.

NURS 425 Nursing of Adults II

Semester course; 3 lecture and 6 clinical laboratory hours. 6 credits. Pre- or corequisite: Completion of all 300-level required nursing courses. Focuses on the client in acute phases of physical illnesses and with complicated multisystem health problems. Provides theoretical foundations for nursing management and related therapeutic regimens. Focuses on the development and application of clinical decision making in the provision of care to acutely ill adults in a variety of settings.

NURS 426 Critical Care Nursing I

Semester course; 3 lecture hours. 3 credits. Offered: Fall semester. Prerequisite: Licensure as a registered nurse or senior undergraduate nursing student with permission of instructor. Focuses on nursing care of the critically ill adult with health care needs in the following systems: cardiovascular, endocrine, pulmonary, immunology and hematology. Focuses on the development and application of clinical decision making in the provision of care to critically ill or injured adults in a variety of settings.

NURS 427 Critical Care Nursing Technologies

Semester course; 2 lecture and 3 laboratory hours. 3 credits. Offered: Fall semester. Prerequisite: Licensure as a registered nurse or senior undergraduate nursing student with permission of instructor. Focuses on critical care technologies that are commonly used in care of the critically ill. Course content will include the theoretical principles on which the selected technologies are based as well as discussions of the practical use and troubleshooting of the technologies presented.

NURS 428 Critical Care Nursing II

Semester course; 3 lecture hours. 3 credits. Offered: Spring semester. Prerequisite: Licensure as a registered

nurse or senior undergraduate nursing student with permission of instructor. Focuses on nursing care of the critically ill adult with health care needs in the following systems: neurology, gastrointestinal and renal. Focuses on the development and application of clinical decision making in the provision of care to critically ill or injured adults in a variety of settings.

NURS 429 Critical Care Nursing Practicum

Semester course; 9 clinical laboratory hours. 3 credits. Offered: Spring semester. Prerequisites: Completion of Critical Care Nursing I and Critical Care Nursing Technologies. Completion of Critical Care Nursing II or may be taken concurrently with Critical Care Nursing II. Focuses on the client in the critical phase of physical illness with complicated multisystem health problems. It provides an opportunity for practice in a critical care area.

NURS 475 Professional Issues in Nursing

Semester course; 3 lecture hours. 3 credits. Focuses on issues of professional practice by exploring the history of nursing, health care policy, codes of ethics and legal and economic implications for nursing. Provides opportunities for students to demonstrate competence in group process.

NURS 476 Professional Transitions

Semester course; 1 lecture hour. 1 credit. Prerequisite: NURS 201. Focuses on the development of the second-degree student as a professional nurse within the context of prior education. Analyzes social forces, issues and trends that have shaped the profession.

NURS 485 Managerial Theory for Nursing Practice

Semester course; 3 lecture hours. 3 credits. Focuses on principles of management as applied to nursing service units, organization of nursing services and health care systems.

NURS 486 Nursing Leadership and Management Practicum

6 clinical laboratory hours. 2 credits. Pre- (by one semester) or corequisite: NURS 485 and completion of 300-level required nursing courses. Provides opportunities to apply management principles to nursing practice in a variety of settings and specialty areas.

NURS 487 Leadership in Today's Health Care Environment

Semester course; 2 independent study and 3 clinical laboratory hours. 3 credits. Prerequisite: Completion of NURS 302 or senior status. Provides an opportunity for preceptorship with a nurse who is leading the profession. Leadership may be in service, education, health policy or research and is not defined by position but by its influence in the discipline. Observation of the leader planning and delivering effective innovation and analyzing the effectiveness leadership behaviors. Construct a personal leadership development plan.

NURS 491 Special Topics Course

This course has several sections, one is a Military Science section related to ROTC requirements. Military Science majors may take the course.

NURS 492 Elective Study

1 to 5 credits. Prerequisite: Consent of department. Independent study projects planned to meet the learning objectives of the student.

NURS 496 Clinical Practicum

Semester course; 9 clinical laboratory hours. 3 credits. Pre- or corequisite: Completion of all 300-level required nursing courses. Facilitates transition into the professional role using a faculty-student-practicing nurse mentorship model. Provides opportunities for practice in a student-selected specialty area.

NURS 497 Specialty Clinical Practice

Semester course; variable; 1-3 credits. Offered: I, II. Prerequisites: RN licensure and enrollment in R.N.-B.S. track or graduate nursing program. Completion or enrollment in 200 and 300-level courses or permission of instructor is required. Advances professional nursing clinical competence using a faculty-student-preceptor mentorship model in a student selected area of specialty clinical nursing practice.

NURS 514/INTL 514 International Perspectives on Community Health in Developing Countries

Semester course; 1 lecture and 2 laboratory hours. 3 credits. This course may be taken for a maximum of six credits in two different world areas. Open to undergraduate (junior or senior level) and graduate students. Explores the impact of national and international policy decisions on the health and well-being of individuals and communities (country varies semester to semester). Examines the relationship of cultural beliefs and values on health-seeking behaviors. Allows students to become immersed in a culture different than their own. Evaluates the impact of international conflict and economic development on the health status of the community. See Schedule of Classes for location.

School of Pharmacy

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Andrew L. Wilson

Associate Professor and Associate Dean for
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B.S. 1976 University of Connecticut
Pharm.D. 1978 Wayne State University

The School of Pharmacy was established officially in 1898; the University College of Medicine had a school of pharmacy when it opened in 1893. The two-year curriculum gave way to a three-year program in 1925, and in 1932 the school required four years of college work and a bachelor of science degree was awarded. In 1960, the program lengthened to a five-year course leading to a bachelor of science in pharmacy degree. In 1975, authority was granted to offer to selected students a six-year program leading to the doctor of pharmacy degree and this degree program was adopted as the only professional offering by the school in 1995.

The authority to award graduate degrees in the pharmaceutical sciences was granted by the Graduate Council in 1952. Departments in the school have the responsibility for administering a graduate program leading to the M.S. and Ph.D. in pharma-

ceutical sciences. This program includes areas of specialization in medicinal chemistry, pharmaceuticals, pharmacotherapy and pharmacy administration. These programs provide the preparation and research experience for academic, governmental and industrial careers.

Graduate degrees in pharmaceutical sciences do not provide eligibility for licensure as a pharmacist. Persons interested in programs leading to licensure as a pharmacist or in advanced professional programs in pharmacy are referred to the "School of Pharmacy Professional Programs" section of the Graduate and Professional Programs Bulletin where the Doctor of Pharmacy (Pharm.D.) Program is described. Students may elect to pursue a joint Pharm.D./M.S., Pharm.D./M.B.A. or Pharm.D./Ph.D. program. Such students must apply to, and be accepted by, both programs separately.

Statement of purpose

The School of Pharmacy at Virginia Commonwealth University exists to provide exceptional programs benefiting the commonwealth of Virginia and society by offering the highest quality education and training for the development of health care practitioners, scientists, professional leaders and responsible citizens. These individuals are committed to shaping the health care world of tomorrow while serving society's health care needs today.

Mission statement

The mission of the VCU School of Pharmacy fully supports the mission and goals of the university and the health system. The mission of the School of Pharmacy is to provide professional, graduate and post-graduate education, to conduct pharmaceutical and biomedical research, and to provide patient care and public service.

The School of Pharmacy strives to provide an educational environment that encourages the following characteristics:

- excellence in scholarship
- excellence in teaching
- diversity and respect among students and faculty
- commitment to meeting the diverse needs of students
- commitment to service within the school, university, the profession and the community
- quality direct patient-care experiences within the curriculum
- promotion and development of lifelong learning

Therefore, we share with teaching the interdependent and almost inseparable objectives of research, service and patient care.

Philosophy

In developing the curriculum of the School of Pharmacy, the faculty recognizes that an educated person should be prepared to assume a responsible and rewarding role in society. The new paradigm of pharmaceutical care guides the school's curriculum committee and faculty in the design and implementation of the curriculum. Pharmaceutical care is the responsible provision of drug therapy by the pharmacist for the purpose of achieving definite outcomes that improve a patient's quality of life. In professional practice pharmaceutical care focuses on the pharmacist's attitudes, behaviors, commitment, concerns, ethics, functions, knowledge, responsibilities and skills in the provision of drug therapy, which achieves outcomes that yield improvement in a patient's quality of life. The educational program is designed to provide a sound,

scientific and professional background for both those who will enter the practice of pharmacy directly and those who wish to continue graduate education in the pharmaceutical sciences. It also includes courses in the arts and humanities in order to provide the student with a broad educational base that will permit participation in community life, not only as a professional, but also as an informed, concerned citizen. The professional curriculum is rigorous and highly demanding of the student's time; concurrent employment is discouraged as it tends to interfere with the educational process. The faculty has adopted a document entitled "Expected Competencies of Doctor of Pharmacy Graduates" and has expanded these competencies into knowledge, skills and attitudes that have been implemented in the curriculum.

Accreditation

The Doctor of Pharmacy program is fully accredited by the American Council on Pharmaceutical Education. The school is a member of the American Association of Colleges of Pharmacy.

Programs

Professional

The school offers the doctor of pharmacy degree. Interested students should refer to

the Graduate and Professional Programs Bulletin on the Web: <http://www.vcu.edu/bulletins>.

Graduate

The school offers programs of graduate study leading to the degrees of Master of Science and Doctor of Philosophy. Students may specialize in pharmaceuticals, medicinal chemistry, pharmacotherapy or pharmacy administration. Interested students with graduate-study potential should consult the appropriate department chair. Information on procedures and policies for graduate studies can be found in the Graduate and Professional Programs Bulletin.

Career opportunities

Graduation from the School of Pharmacy affords the opportunity to pursue one of several career paths. The most familiar role is as a provider of pharmaceutical care to ambulatory patients in a community setting. In this setting the pharmacist may be self-employed or may be an employee of an organization such as an independent pharmacy, a corporate chain of pharmacies or a managed-care pharmacy in a health maintenance organization. Many pharmacists also practice in institutional settings such as hospitals or other health care institutions. The pharmaceutical industry also employs pharmacists in several areas including manu-

facturing, quality control, research, sales and as medical service representatives who call on physicians. Opportunities also are available in various government services, including the public health service and Veterans Affairs as well as in government-operated laboratories. In most cases, those who aspire to engage in independent research or to teach seek graduate degrees in the pharmaceutical sciences or in specialty fields related to pharmacy.

Course in medicinal chemistry (MEDC)

MEDC 310/CHEM 310 Medicinal Chemistry and Drug Design

Semester course; 3 lecture hours. 3 credits. Prerequisite: One year of organic chemistry. This course is designed to expose undergraduate chemistry, biology and pre-medicine majors to the history, theory and practice of medicinal chemistry. The course will emphasize a combination of fundamentals and applications of drug design. In particular, the molecular aspects of drug action will be discussed. Special emphasis will also be placed on the methods used by medicinal chemists to design new drugs.

School of Social Work

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Dean and Professor of Social Work (1992)
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Marcia P. Harrigan

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B.A. Muskingum College
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The oldest of its kind in the South, Virginia Commonwealth University's School of Social Work was established in 1917 as the Richmond School of Social Economy. Later renamed the School of Social Work and Public Health, it became the first unit of Richmond Professional Institute. The school was created initially in response to community needs in working with World War I veterans and their social and health problems. Subsequent development of the school has expanded activity into all areas of human service.

With the creation of VCU in 1968, the School of Social Work became a unit of the university's Academic Campus. The Raleigh

Building at 1001 W. Franklin St. houses faculty offices, a student lounge and conference rooms.

Social workers are committed to the enhancement of social functioning and the promotion of social justice. To achieve these goals, social workers provide services to individuals, families, groups, communities and organizations. They also plan and administer the delivery of social services and advocate positive social and institutional change. Social work education provides the knowledge, skills and value base for these professional activities.

Social work education at VCU is highly individualized and is characterized by a close relationship between faculty and students. Faculty members help students learn the form and method of social work practice and students are encouraged to discover their own unique style of helping others. The school's educational programs are designed to prepare students for practice in many different kinds of social agencies. A combination of classroom courses and concurrent fieldwork experiences facilitates integration of knowledge, attitudes and skills necessary for professional practice. The integrated class and fieldwork curriculum offers students the opportunity to acquire a substantial base in social work practice, patterns of human behavior and development, organization and operation of social welfare programs and policies, the methods of scientific inquiry in social work, and the needs of special populations.

Accreditation

VCU's Bachelor of Social Work Program is accredited by the Commission on Accreditation of the Council on Social Work Education — the accrediting body for all schools of social work at both the baccalaureate and master's levels. Copies of the Accreditation Standards and Curriculum Policy Statement are available in the Office of the Dean.

Baccalaureate Social Work Program

Guided by the principle of promoting social justice, the goals of the B.S.W. Program are:

1. to provide an integrated curriculum based on the knowledge, skills, ethics and values essential for beginning generalist social work practice.
2. to offer an educational experience that facilitates the critical analysis of social work knowledge and practice.
3. to provide classroom and field instruction experiences designed to promote culturally sensitive practice with diverse and oppressed groups.
4. to provide an environment that encourages lifelong learning and prepares students for professional growth and development.

Degree requirements

The Bachelor of Social Work degree requires completion of 121 credits, including 42 credits in the major. The curriculum of the Bachelor of Social Work Program is specifically designed to prepare students for beginning-level generalist social work practice. This practice model requires a broad base of knowledge about individuals, families, groups, communities and organizations and an appreciation of cultural diversity. General education courses provide an essential foundation for the upper-level professional curriculum and are required for admission to junior and senior social work courses.

Freshman and sophomore year curricula

Course	credits
ANTH 103 Introduction to Anthropology	3
BIOL 101 and BIOZ 101L Biological Concepts and Laboratory	4
ENGL 101 and ENGL 200 Writing and Rhetoric Workshop I and II	6

MATH 131 Introduction to Contemporary Mathematics or higher	3
STAT 208 Statistical Thinking or higher	3
PHIL 211 History of Ethics, PHIL 212 Ethics and Applications, PHIL 213 Ethics and Health Care, PHIL 221 Critical Thinking or PHIL 222 Logic	3
PSYC 101 Introduction to Psychology and PSYC 304 Life Span Developmental Psychology	7
SOCY 101 General Sociology	3
SLWK 201 Introduction to Social Work and SLWK 230 Communication in the Helping Process	6
General requirements and electives	23

Junior year: first semester (fall or spring)

SLWK 311 Social Work and Oppressed Groups	3
SLWK 313 Person in Society I	3
SLWK 390 Foundations of Social Work Research	3
General requirements or electives	6

Junior year: second semester (fall or spring)

SLWK 330 Person in Society II	3
SLWK 332 Social Work Practice: Fundamentals	3
SLWK 393 Junior Field Instruction	3
General requirements or electives	6

Senior year: fall semester only

SLWK 441 Social Work Practice I and SLWK 494 Senior Field Instruction I	6
SLWK 422 Social Welfare Legislation and Services or SLWK 431 Person in Society III	3
General requirements or electives	6

Senior year: spring semester only

SLWK 442 Social Work Practice II and SLWK 495 Senior Field Instruction II	6
SLWK 422 Social Welfare Legislation and Services or SLWK 431 Person in Society III	3
General requirements or electives	6

Total credits 121

General requirements and electives

Course	credits
Art*	2
minimum	
PSYC 407 Psychology of the Abnormal	3
BIOL**	3
Humanities**	6
Social-behavioral sciences**	12
Foreign language (101-102 level)	8
minimum	
General electives***	13
minimum	

* From the College of Humanities and Sciences approved list of art courses for non-School of the Arts majors.

** From the School of Social Work approved list for these requirements. Students should consult with their academic adviser to make appropriate choice.

*** General electives are courses of the student's choosing.

B.S.W. academic policies

Admission requirements

For admission to the professional preparation program (300- and 400-level social work courses) offered in the junior and senior years, students must complete at a minimum 54 credits, including the specified requirements in the freshman and sophomore curricula above. In addition, to gain admission to the professional preparation program, students must achieve a minimum grade of "C" in ENGL 101-200 and "B" in SLWK 201 and SLWK 230, and must have a minimum GPA of 2.5 in all course work completed.

Application process

Students eligible to register for upper-level social work courses need to make an appointment with their adviser to review and complete the "Application for Admission to the B.S.W. Professional Preparation Program" form. This form is available from the Office of Student Services, Room 107, Raleigh Building. Although the Bachelor of Social Work program can be completed on a part-time basis, it cannot be completed exclusively in the evening because of field practicum requirements and the scheduling of some classes. Transfer students may be granted provisional admission contingent on their meeting the above requirements and completion of 15 credits at VCU.

Continuing in the program and graduation

All students must successfully complete the following courses. Students must earn a "C" or better in all 300-level social work courses before entering the 400-level courses. Students must have a "C" or better in all required social work courses before graduation.

A student who earns a grade of "D" or "F" in any 300- or 400-level social work course may repeat the course once. If a grade of "D" or "F" is earned in the repeated course, the student will be terminated from the B.S.W. program.

Transfer of credits from other colleges or universities or from other programs at VCU is determined on an individual basis. Credit is not given for life experiences. A minimum of 121 credits is required for the B.S.W. degree.

Application for the field practicum must be made through the School of Social Work Field Department and must be received by the eighth week of the spring or fall semester. Field placements require students to spend 14 hours a week in an agency and cannot be completed on nights and weekends. Students may request a placement with some evening and/or weekend hours. These placements are scarce and the granting of such a request depends on the availability of appropriate agencies and resources.

As a condition for graduation, students must submit in the spring term of their senior year a portfolio of selected assignments. Assignments are to be selected according to the specific instructions in each 200-, 300- and 400-level social work course syllabus. Portfolios are reviewed by B.S.W. program to assess the degree to which the B.S.W. program outcomes have been achieved and not to assess the individual student's performance, although students may request feedback from their academic adviser as to the quality and completeness of their portfolio.

Prior to graduation all students must pass the Computer Proficiency Examination.

There are additional policies that affect students' progression in the professional degree program. Students are responsible for compliance with these policies. They are listed in the B.S.W. Handbook, which is available on the School of Social Work Web site: <http://www.vcu.edu/slwwweb>.

Course restrictions

Practice (SLWK 332, 441 and 442) and field education (SLWK 393, 494-495) courses are restricted to majors only. Students minoring in social welfare, or other students with permission of program director or course instructor, may take SLWK 311, 313, 330, 390, 422 and 431. In all cases, however, prerequisites must be satisfied.

Minor in social welfare

A minor in social welfare is available to non-social work majors. This minor consists of 18 credits, including SLWK 201 Introduction to Social Work and SLWK 422 Social Welfare Legislation and Services. The remaining 12 credits can be fulfilled by completing SLWK 230 Communication in the Helping Process, SLWK 311 Social Work and Oppressed Groups, SLWK 313 Person in Society I, SLWK 330 Person in Society II, SLWK 390 Foundations of Social Work Research or SLWK 431 Person in Society III. Practice and field courses are restricted to majors.

Honors in social work

Baccalaureate social work majors may earn honors in social work. Eligible students may apply in the second semester of their junior year. Students must have completed at least 12 credits in social work at VCU and have earned a 3.3 overall GPA and a 3.6 GPA in social work courses.

To graduate with honors in social work, students must have earned three credits of approved honors modules with a grade of "B" or better. Students who meet these requirements and all other graduation requirements of the university will have honors in social work noted on their transcripts.

Student association

The Baccalaureate Social Work Student Association, an organization of students in the Bachelor of Social Work Program, was established to facilitate communication among students and between the student body and the school faculty and staff. This organization plays a vital role in the educational process. Through student representation on committees within the school, BSWSA members participate in decision-making processes. In addition, the association enables students to conduct a variety of social and professional activities throughout the year.

Graduate Social Work programs

The school offers a Doctor of Philosophy in Social Work program and a two-year, full-time or four-year, structured part-time professional program in social

work leading to the Master of Social Work (M.S.W.) degree. For a detailed description of the Master of Social Work and Doctor of Philosophy programs see the Graduate and Professional Programs Bulletin on the Web: <http://www.vcu.edu/bulletins>.

Advanced-standing Program

Open to a selected group of students, this program leads to a Master of Social Work degree upon completion of at least 39 credits, which must be completed in a summer session followed by an academic year.

For admission to this program, each applicant must hold a bachelor's degree from an undergraduate social work program accredited by the Commission on Accreditation of the Council on Social Work Education. The Bachelor of Social Work degree must have been conferred no more than five years prior to application for the Advanced-standing Program. The Advanced-standing Program begins in early June, continues through the summer and culminates in graduation the following May. Successful candidates for this program must earn a minimum GPA of 3.2 for the last 60 hours of academic work and go through a structured interview on campus. Deadline for application is Dec. 1.

Courses in social work (SLWK)

SLWK 201 Introduction to Social Work

Semester course; 3 lecture hours. 3 credits. Systematic overview of the social work profession. Begins the process of professional socialization, both through class content and required service experience. Knowledge of the nature of social work, the fields of social work practice, target populations, overview of social work methods.

SLWK 230 Communication in the Helping Process

Semester course; 3 lecture hours. 3 credits. The study of the knowledge, skills and values of effective human communication and interpersonal relations. Includes observation, collection and description of data, verbal and nonverbal communication and the relevance of the above to social work practice. Integrates issues of human diversity in all course content. Emphasizes the demonstration and practice of communication through structured exercises.

SLWK 311 Social Work and Oppressed Groups

Semester course; 3 lecture hours. 3 credits. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Examines forces leading to individual prejudice and institutional oppression. Focuses on impact of oppression. Provides students with an understanding of diversity and a general knowledge of social work

strategies to alleviate oppression and to empower the oppressed.

SLWK 313 Person in Society I

Semester course; 3 lecture hours. 3 credits. Prerequisite: ANTH 103, BIOL 101, PSYC 304 and SOCY 101. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. First of a three-semester sequence on human behavior and the social environment. Uses theoretical concepts and research findings from the behavioral sciences as background for understanding and assessing the functioning of individuals and families in their social environment. Facilitates integration of theory and research with assessment skills associated with basic social work practice. Emphasizes the social systems approach for analyzing the impact of various social problems on individual and family dynamics. Writing intensive.

SLWK 330 Person in Society II

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Second of three courses on human behavior in the social environment. Uses theoretical concepts from the behavioral sciences to understand the family and small groups as social institutions and social groups as context for human behavior over the life cycle. Designed to provide a theoretical foundation for practice with families and small groups.

SLWK 332 Social Work Practice: Fundamentals

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Corequisite: SLWK 393. Open only to social work majors with junior status. First of three semester practice sequence. Introduces students to basic concepts and skills of beginning-level professional generalist social work practice. Emphasizes application of concepts to the concurrent fieldwork experience.

SLWK 390 Foundations of Social Work Research

Semester course; 3 lecture hours. 3 credits. Prerequisite: STAT 208. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Designed to provide an understanding and appreciation of a scientific, analytic approach to building knowledge for practice and for evaluating multilevel service delivery. Provides an overview of the research process, including problem formulation, sampling, design, measurement, data collection, data analysis and dissemination of findings. Presents ethical standards of scientific inquiry with special attention to research with vulnerable and oppressed populations.

SLWK 391 Topics in Social Work

Semester course; variable hours. 1-3 credits. An in-depth study of a selected topic relevant for professional social work practice. See the Schedule of Classes for the specific topic to be offered each semester.

SLWK 393 Junior Field Instruction

Semester course; 3 credits. Prerequisite: SLWK 313. Corequisite: SLWK 332. Open only to majors with junior status. Fourteen hours per week (spring semester) or 20 hours per week (summer session) in a community agency under the supervision of an agency-based field instructor. Intended to facilitate student's understanding of agency structure and community context, ability to engage in professional relationships, to assess strengths, define problems, set goals and utilize beginning-level practice skills with individuals, families,

groups, organizations and communities. Promotes identification as a professional social worker.

SLWK 422 Social Welfare Legislation and Services

Semester course; 3 lecture hours. 3 credits. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Analyzes social welfare policy as related to social values, social problems, and social structures. Examines frameworks for policy analysis and for evaluation of programmatic outcomes of policy, with application to contemporary social service and income maintenance policies and delivery systems. Considers the economic, political and ideological factors and processes that affect social welfare legislation, financing and implementation.

SLWK 431 Person in Society III

Semester course; 3 lecture hours. 3 credits. Prerequisite: SLWK 313. Open only to majors or minors in social welfare with junior status or by permission of program director or course instructor. Third of three courses on human behavior in the social environment. Builds on the theoretical concepts from the behavioral sciences discussed in SLWK 230 and 313. Focus on

understanding organizations and how their purposes, auspices, structure, processes and environment affect the delivery of social services to diverse groups. The community context of social services, including that of the consumer, is emphasized from an open systems theoretical perspective. Students will be expected to integrate course content with their field experience or other agency with which they are familiar. Required of all undergraduate social work majors.

SLWK 441 Social Work Practice I

Semester course; 3 lecture hours. 3 credits. Pre- or corequisite: SLWK 390. Prerequisites: SLWK 332, 393. Open only to majors with senior standing. Second of a three-semester practice sequence. Review of interviewing and problem solving for generalist social work practice with diverse populations. Emphasis on agency structure and function, skills of engagement and problem definition, assessment, planning for intervention and evaluation. Use of material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 442 Social Work Practice II

3 lecture hours. 3 credits. Prerequisites: SLWK 441, 494. Open only to majors with senior standing. Third of a

three-semester practice sequence. Emphasizes planning and implementing change with diverse populations, professional ethics, professional development, termination and evaluation of generalist social work practice. Use of case material from concurrent fieldwork practice to facilitate integration of learning.

SLWK 492 Independent Study

Semester course; 1, 2, 3 lecture hours. 1, 2, 3 credits. Prerequisites: Junior or senior standing and permission of instructor. Under supervision of a faculty adviser, whose consent is required to register, study of a topic of concern to the student. Each student must present his or her findings in writing or pass an oral examination.

SLWK 494-495 Senior Field Instruction I and II

Continuous course; 3-3 credits. Corequisites: SLWK 441, 442. Open only to majors with senior status. Fourteen hours per week in a community agency under the supervision of an agency based field instructor. Intended to develop knowledge, values and social work practice skills appropriate to entry-level generalist practice in human service agencies.

Division of Student Affairs and Enrollment Services

901 Floyd Ave. • P.O. Box 843017
Richmond, VA 23284-3017
(804) 828-1244 • Fax (804) 828-2180
<http://www.students.vcu.edu>

Henry G. Rhone

Vice Provost for Student Affairs and Enrollment
Services (1989)
B.A. 1968 Amherst College
M.Ed. 1973 Virginia Commonwealth University
Ed.D. 1977 University of Virginia

Reuban B. Rodriguez

Associate Vice Provost and Dean of Student Affairs
(2004)
B.A. 1984 Emory University
M.S. 1993 Georgia State University
Ed.D. 1999 University of Central Florida

Randall W. Dahl

Associate Vice Provost for Enrollment Services
(2004)
B.S. 1968 University of Illinois
M.S. 1970 Indiana University
M.P.A. 1977 University of Kentucky
Ed.D. 1981 University of Kentucky

Martha L. Green

Assistant Vice Provost for Student Affairs
and Enrollment Services (2001)
B.A. 1968 University of North Carolina,
Greensboro
M.S. 1971 Virginia Commonwealth University
Ed.D. 1994 North Carolina State University

Geoffrey H. Young

Associate Dean of Student Affairs, MCV Campus
(2004)
B.A. 1984 Hampton University
M.A. 1988 Ohio State University
Ph.D. 1990 Ohio State University

The university offers students a wide variety of services, facilities and resources, many of which are the administrative responsibility of the Division of Student Affairs and Enrollment Services.

Office of the Vice Provost for Student Affairs and Enrollment Services

Henry G. Rhone

Vice Provost for Student Affairs and Enrollment
Services (1989)
B.A. 1968 Amherst College
M.Ed. 1973 Virginia Commonwealth University
Ed.D. 1977 University of Virginia

The mission of the Division of Student Affairs and Enrollment Services is to help VCU students learn and develop from their educational experiences, to improve the quality of student life through attention to the varied aspects of the campus environment, to provide quality services that are responsive to student needs, and to effectively communicate and collaborate with students, faculty, alumni, families and other publics.

Campus life departments of the division are the Office of the Dean of Student Affairs, Academic Campus; the Office of the Associate Dean of Student Affairs, MCV Campus; Larrick Student Center; University Student Commons and Activities; the University Career Center; Cooperative Education; University Counseling Services; University Student Health Services; Recreational Sports; and University Housing and Residence Education. The enrollment services areas of the division are Financial Aid, Student Accounting, Records and Registration, and Undergraduate Admissions.

Special programs in support of students' academic success are First Year Student Services, and the offices of Disability Support Services, Student Academic Support Services (MCV Campus) and Multicultural Student Affairs.

In addition, the division provides administrative support for the key policies of the university, including the VCU Honor System and the Rules and Procedures.

The Office of the Vice Provost for Student Affairs and Enrollment Services is located in the Sitterding House at 901 Floyd Ave., P.O. Box 843017, Richmond, VA 23284-3017. The telephone number is (804) 828-1244.

Office of the Associate Vice Provost and Dean of Student Affairs

Reuban B. Rodriguez

Associate Vice Provost and Dean of Student Affairs
(2004)
B.A. 1984 Emory University
M.S. 1993 Georgia State University
Ed.D. 1999 University of Central Florida

The Office of the Associate Vice Provost and Dean of Student Affairs serves as a resource for students, parents of students, faculty and staff who have problems or concerns with their interaction with one another or with the university. The dean's office assists in resolving issues or refers inquirers to the appropriate person elsewhere at VCU.

The dean's office also is actively involved in understanding students and their needs, improving the quality of student life, and collecting and disseminating information important to students.

The dean sits on a number of university committees, participates in orientation activities, provides supervision for several departments of the Division of Student Affairs and Enrollment Services and serves as a key administrator for several major policy statements of the university including the VCU Honor System.

Students, parents of students and staff who have issues they wish to discuss or who are interested in various programs and opportunities should visit the dean's office, located in the Sitterding House, 901 Floyd Ave., P.O. Box 843017, Richmond, VA 23284-3017. Telephone (804) 828-8940 or send e-mail to vcudean@vcu.edu.

Office of the Associate Vice Provost for Enrollment Services

Randall W. Dahl

Associate Vice Provost for Enrollment Services
(2004)

B.S. 1968 University of Illinois
M.S. 1970 Indiana University
M.P.A. 1977 University of Kentucky
Ed.D. 1981 University of Kentucky

The Office of the Associate Vice Provost for Enrollment Services provides leadership in the implementation of the university's enrollment plans, provides leadership in the development of marketing strategies and demographic targeting of potential undergraduate students, and coordinates efforts to recruit students in concert with the Office of International Student Services and the Graduate School.

This office is located in the Sitterding House, 901 Floyd Ave., P.O. Box 843017, Richmond, VA 23284-3017. Telephone (804) 827-8737 or e-mail rdahl@vcu.edu.

Office of the Assistant Vice Provost for Student Affairs and Enrollment Services

Martha L. Green

Assistant Vice Provost for Student Affairs and Enrollment Services (2002)

B.A. 1968 University of North Carolina, Greensboro
M.S. 1971 Virginia Commonwealth University
Ed.D. 1994 North Carolina State University

The Office of the Assistant Vice Provost for Student Affairs and Enrollment Services provides assistance to the vice provost for student affairs in the overall administration of the Division of Student Affairs and Enrollment Services. This office also is actively involved in understanding students and their needs, improving the quality of student life, and collecting and disseminating information important to students and to the university. Printed publications of this office include the VCU Resource Guide and the Handbook for Parents. Most Division of Student Affairs and Enrollment Services publications are available on the Web at <http://www.students.vcu.edu>.

The assistant vice provost sits on a number of university committees, serves as the ombudsman for students, the development officer and provides supervision for several

departments in the Division of Student Affairs and Enrollment Services.

The Office of the Assistant Vice Provost for Student Affairs and Enrollment Services is located in the Sitterding House at 901 Floyd Ave., P.O. Box 843017, Richmond, VA 23284-3017. Telephone (804) 828-7525 or send e-mail to mlgreen@vcu.edu.

Office of the Associate Dean of Student Affairs, MCV Campus

Geoffrey H. Young

Associate Dean of Student Affairs, MCV Campus
(2004)

B.A. 1984 Hampton University
M.A. 1988 Ohio State University
Ph.D. 1990 Ohio State University

The Office of the Associate Dean has primary responsibility for the administration of the university's disciplinary procedures and the University Honor System, coordinates student affairs services on the MCV Campus in concert with the associate vice provost and dean of student affairs, works closely with the student leadership organizations on the MCV Campus and is the primary spokesperson with students, parents, faculty and administrators on issues related to the quality of life for students on the MCV Campus.

The associate dean's office is located in Bear Hall, 10th and Leigh streets, P.O. Box 980243. Telephone (804) 828-0525 or send e-mail to ghyoung@vcu.edu.

Jonah L. Larrick Student Center, MCV Campus

James W. Miller

Director, Larrick Student Center (1985)
B.S. 1991 Radford University

The Jonah L. Larrick Student Center, located at 641 N. Eighth St., is a circular building with dining facilities on the first level and activity areas on the second level. The first floor cafeteria is available to boarding students as well as others on a cash basis. The lounge upstairs accommodates up to 375 people and is used for movies, dances, lectures, receptions, art exhibitions and other events. Offices are provided for the MCV Campus Student Government Association, the X-Ray yearbook and the MCV Campus Honor Council. Also avail-

able are separate areas for billiards and table tennis, television and listening to music.

The Student Center Board, composed of students, faculty and administrators, determines procedures, programs and priorities for the Larrick Center and helps determine student interests and needs.

To reserve activity space or for more information, telephone (804) 828-3438.

Larrick Center hours

Monday – Friday	8:30 a.m. – 11 p.m.
Saturday and Sunday	1 – 11 p.m.

University Student Commons and Activities, Academic Campus

Timothy A. Reed

Director (1998)
B.S. 1982 University of Evansville
M.A. 1985 The Ohio State University
Ph.D. 2001 Virginia Polytechnic Institute and State University

The facilities, services and programs of the University Student Commons and Activities are designed and implemented to bring together all members of the VCU community, thereby contributing to intellectual, emotional and social growth through informal interaction. A diverse offering of educational, social, cultural and recreational programs represents an invitation to make use of personal time as an integral part of the college experience. Students develop and refine citizenship, leadership, management and interpersonal skills through participation in programs, events and organizations with administrative and advising support from staff.

University Student Commons

907 Floyd Ave.
P.O. Box 842032
Richmond, VA 23284-2032
(804) 828-6500
<http://www.students.vcu.edu/commons>

The University Student Commons is a gathering place for the VCU community on the Academic Campus — students, faculty, staff, alumni and guests. The Commons provides an array of programs, facilities and services to meet the needs of daily life on campus. All the facilities and services in the Commons are conveniently accessible to

people with mobility impairments. Building hours during the academic year:

Monday – Thursday	7 a.m. – midnight
Friday	7 a.m. – 1 a.m.
Saturday	10 a.m. – 1 a.m.
Sunday	Noon – 11 p.m.

(Holiday and Summer Session hours are posted.)

Information Services

Information Services is staffed by students ready to field any VCU-related question. Stop by, or call (804) 828-1981. Stay-In-Touch Television (SIT-TV), a system of video monitors located throughout the Commons, displays up-to-the-minute information about campus services and events as well as local weather, national news and sports.

Lounges, meeting rooms and event spaces

The Lobby Lounge is the crossroads of the Academic Campus — a great place to meet friends or watch people. The Plaza, Floyd and Richmond Lounges as well as the James River Terrace offer a quieter atmosphere for study, conversation or reflection in addition to great views of the popular Floyd Avenue walkway and the Commons Plaza. Art exhibition space includes the Art Gallery and other public spaces around the Commons. The expanded Commons has more meeting rooms and event rooms for students and student organizations in which to hold activities. From the small conference rooms to the Commonwealth Ballroom and Richmond Salons, the Commons can meet the needs of just about any organization planning campus events.

General services

Dining and retail services include the first-floor food court, open for breakfast, lunch and dinner, hot meals and fast food on a cash or credit debit basis. A technology store, Online@VCU offers computer hardware and software. Other facilities of the Commons include a self-service U.S. Post Office station, two Wachovia ATM locations, pay telephones, a coin-operated photocopier and vending machines.

Off-campus Student Services

With services available to those who drive, ride, walk or bus to campus, Off-campus Student Services offers ride-share assistance, a car emergency tool kit for check-out, bicycle registration, off-campus housing assistance, and coin-operated and rental lockers providing secure storage for personal belongings. The Common Ground, located on the lower level, includes a Ride Board to connect drivers and riders for local and long-distance carpooling, LAN ports to the campus network for students' laptop computers, a microwave for heating lunches and vending machines. Rental lockers, available for rent by semester or academic year, also are available on the lower level. Coin-operated lockers for short-term storage of personal belongings are located in Room 141.

Student activities

The Student Programs Office is located in Room 229, University Student Commons, 907 Floyd Ave., P.O. Box 842035, Richmond, VA 23284-2035; telephone (804) 828-3648.

This office supports and encourages numerous opportunities for students to participate and provide leadership in social, cultural, service and recreational activities and organizations. Students determine their own level of involvement, bearing in mind the need for balance between academic and cocurricular commitments.

Student organizations and volunteer services

VCU has more than 230 registered student organizations. Whether interested in student government, campus programming, Greek life, recreational sports or community service, students may choose from a variety of organizations.

The Student Organization Service Center is located in the Commons Underground (Lower Level), it houses office space for student groups, provides support services and resources to foster organization development. Web pages, listservs, storage space, mailboxes, photocopying and more are resources and services available in the center.

Volunteer Services provides a link between VCU and the Richmond community through one-time service initiatives and ongoing volunteer opportunities. Volunteer Services hosts a Student Organization and Volunteer Fair during the fall semester, and in the spring, sponsors the Alternative Spring Break program. Other activities include the sponsorship of a mentoring program — the Carver Promise, 60 Minutes Service series, and the Into the Streets service plunge.

Programs and events

Focus is on events that bring social and educational programming to the university, which promote campus life. Annual programs include: The Back to College Jam, Welcome Week, First Friday, Fall Tip-off, Help for the Holidays, concerts, fall and spring Short Courses, Homecoming and the "Class of?" Graduation Party. The summer program series offers trips, films and concerts through summer sessions.

Leadership and Greek Life

The Office of Leadership & Greek Life offers a variety of programs and services open to any student who wants to enhance his or her leadership skills. The office offers workshops, retreats and consultation. By participating in any one of VCU's leadership opportunities, students can maximize their potential and gain valuable skills.

The Greek community at VCU consists of 21 diverse and dynamic fraternities and sororities that are dedicated to scholarship, service and personal development.

Honor societies

Chapters of the following national honor societies are located at VCU and annually recognize students and faculty for their service and scholarship:

Honorary

Alpha Kappa Delta – sociology
 Golden Key International Honor Society
 Order of Omega – fraternities and sororities
 Phi Eta Sigma – freshman honor society
 Phi Sigma Pi National Honor Fraternity – Alpha Sigma Chapter
 Pi Theta Epsilon, Phi Chapter – occupational therapy honor society
 Psi Chi, National Honor Society in Psychology
 Sigma Phi Omega, Epsilon Chapter
 Tau Beta Phi Engineering Honor Society

Discipline societies

Alexandrian Society – History Club
 American Criminal Justice Association
 American Institute of Graphic Arts
 American Marketing Association (AMA)
 American Society for Interior Design
 American Society for Mechanical Engineers – student chapter
 Anthropology Club
 Association for Information Technology Professionals
 Bachelor of Social Work Association
 Beta Alpha Psi (Accounting)
 Biomedical Engineering Society
 Black Data Processing Association
 Black Master of Social Work Association
 CARD Senior Exhibition
 Contemporary Crafts Society
 Counselor Education Student Networking Association
 Delta Epsilon Chi
 Delta Sigma Pi – business
 Dental Club VCU, ASDA
 Emergency Medicine Student Association
 Engineering Student Council
 Financial Management Association
 Forensic Science Student Club
 Gamma Iota Sigma – insurance
 Gamma Theta Upsilon, Theta Omega Chapter – geography
 Graduate Artists Association
 Graduate Organization of Biology Students
 Graduate Research Association of Students in Pharmacy
 Health, Physical Education and Recreation Majors Club
 Inter Fraternity Council (Pharmacy)
 International Society for Pharmacoeconomics and Outcomes Research
 Institute of Electrical and Electronic Engineers
 Jennings Society – economics
 Kappa Epsilon (Pharmacy)
 Kappa Kappa Psi
 Kappa Psi (Pharmacy)
 Le France Club
 Life Sciences Club
 Master of Social Work Student Association
 Master's Society in Business
 Minority Association of Pre-medical Students
 National Art Education Association – student chapter
 National Association of Black Accountants
 National Society of Black Engineers
 Phi Beta Lambda
 Phi Delta Chi (Pharmacy)
 Phi Lambda Sigma (Pharmacy)
 Philosophy Club (The)
 Pre-dental Club at VCU, ASDA
 Pre-law Society of Virginia Commonwealth University
 Pre-med Society
 Pre-pharmacy Club
 Pre-physical Therapy Club
 Professional and Academic Writers Association
 Public Relations Student Society of America
 Ranger Challenge Club ROTC
 Religious Studies Society
 Rho Chi (Pharmacy)
 Siggraph Student Chapter – VCU
 Society for Advancement of Management

Society for Human Resource Management – student chapter
 Society of Professional Journalists – VCU chapter
 Society of Women Engineers
 Student Association of Community Pharmacists
 Student Chapter of Physicians for Human Rights at VCU/VCU Medical Center
 Student Chapter of Virginia Society of Health-system Pharmacists
 Student National Pharmaceutical Association
 Student Nurses' Association
 Student Occupational Therapy Association of VCU
 The Gogs (Theater and Performance)
 Theta Tau, Kappa Gamma Chapter – engineering
 Urban and Regional Planning Student Association
 Urban Studies Student Association
 Virginia Academy of Students of Pharmacy
 VCU School of Pharmacy – Classes of 2003 – 06
 Zeta Phi Sigma Engineering Sorority

MCV Campus students who excel in scholarship and leadership may be eligible for membership in honor societies related to their fields of study. In addition, MCV Campus students who meet established criteria may be elected to one or more of the following societies:

- **Phi Kappa Phi** is a national honor society that recognizes and encourages superior scholarship. It accepts members from applied and professional fields of study as well as from letters, arts, sciences and humanities. The VCU chapter was installed in 1977.
- **Sigma Xi Society** is a national honor society founded for the encouragement of research in science and that recognizes individuals for research achievement or promise.
- **Alpha Sigma Chi** is an MCV Campus organization founded in 1938. It recognizes those individuals who excel in leadership and service to colleagues, school and the university.
- **Sigma Zeta** is an honorary science fraternity that encourages and fosters knowledge of the sciences and recognizes attainment of high scholarship in the sciences. Gamma Chapter was installed at MCV in 1926.

Student and university governance

The University Council, an advisory body to the university president, is the highest internal governance body at VCU. The council is made up of 27 faculty members, 10 students, 10 administrators, 10 classi-

fied staff members and four subcommittees — the Committee on Student Affairs, the Committee on Academic Affairs, the Committee on Faculty Affairs and the Committee on Classified Staff Affairs.

Academic Campus Student Government Association

The Academic Campus Student Government Association is composed of senators elected from the college and each of the six schools on the Academic Campus and an elected student body president, vice president and executive director for university relations.

The Academic Campus SGA provides opportunities for students to express themselves in the development and implementation of VCU policies, to develop and coordinate services and activities for students, and to budget and allocate student activities fees. Elections for student senators, student body president and student body vice president are held each spring. Appointments of at-large senators and student representatives to university committees are made as vacancies occur throughout the year.

The Student Government Association is organized into standing committees — Steering, Appointments, Appropriations, Elections, Human Relations, Legislative Issues, Publicity and Student Services — and non-elected at-large members are encouraged to join most of these committees. All meetings of the senate are open to the public.

Additional information about the Academic Campus SGA is available from the SGA office in the Student Activities Center or by calling (804) 828-7551.

Many other opportunities to participate in departmental and/or school decision making exist for students on the Academic Campus. Contact department or deans' offices for more information on committee participation.

MCV Campus Student Government Association

The student body organization on the MCV Campus was formed to promote college activities, to promote a concern among students for each other and a greater identification with the university, to express a unified voice in matters that affect the best interest of the student body, and to foster

a constructive relationship between the university and the community and state.

Representatives to the MCV Campus Student Government Association are elected from each class in each health science school on the basis of one representative per 40 students. SGA meetings are held monthly from September through April, except December and are open to all MCV Campus students. The association sponsors such projects as blood drives and University Guest Day and provides a forum for discussion of student ideas and suggestions.

Programming Commission, Academic Campus

The newly formed Programming Commission coordinates programs and events planned by student organizations that specialize in major event planning.

Activities Program Board

The committees of APB plan and implement social, educational and cultural activities for students. Subcommittees are open to all VCU students. Contact the program committee chairs for involvement information at (804) 828-7550.

InterCultural Festival Planning Board

This board plans the annual InterCultural Festival held the first Sunday in April. One of the largest outdoor events at VCU, the InterCultural Festival celebrates the diversity of VCU and the Richmond community. Students should contact OMSA at (804) 828-6672 for information.

Fall Step Show Planning Board

The annual Fall Step Show is the largest student planned show of its kind at VCU. Each year the Step Show Planning Board creates a program highlighting the rich heritage of the historically African American fraternities and sororities. Students should contact the Leadership and Greek Life Office for information on this event at (804) 828-3648.

Student media, Academic Campus

Commonwealth Times

Students write and edit the Commonwealth Times, a campus newspaper containing news, features, editorials and reviews of timely topics. The offices are located in Room 1149 of the T. Edward Temple Building, 901 W. Main St., P.O. Box 842010, Richmond, VA 23284-2010; (804) 828-1058.

The Vine

This news magazine presents news of VCU's multicultural students. The office is located in the Temple Building, Room 1140; telephone (804) 827-0646.

Millennium

This literary magazine, published annually, showcases creative writing and art by VCU students.

WVCW

The student-operated radio station can be heard at WVCW-AM 640 on campus, online or via cable radio. Programming includes music, information, news, public affairs and public service announcements. WVCW studios and offices are located in the T. Edward Temple Building, Room 1123, 901 W. Main St., P.O. Box 841961, Richmond, VA 23284-1961; telephone (804) 828-1057.

University Career Center

Susan Story

Acting Director (1988)
B.A. 1968 State University of New York at Stony Brook
M.Ed. 1988 Virginia Commonwealth University

The University Career Center assists students and recent alumni to identify and achieve their career goals. Career Center staff work with students to help them explore career options, decide on career directions and develop sound strategies for realizing their career goals.

The Career Center, located in Room 143 of the Student Commons, offers a career library of more than 600 printed books

and publications. Students have access to employer literature such as annual reports, recruiting brochures, and graduate and professional school publications.

Career counseling sessions are offered by appointment using assessment tools such as Campbell Interest and Skill Surveys, the Strong Interest Inventory, the Self-directed Search and the Myers-Briggs Type Indicator. Students may receive assistance with resume development, job search skills and interviewing techniques.

The Career Center maintains job postings of part-time, internship and off- and on-campus work-study positions for students who are eligible. These postings may be accessed 24 hours a day through the Career Center Web site at <http://www.students.vcu.edu/careers> or in the Career Center computer lab.

The Career Center also offers a comprehensive Cooperative Education Program that blends traditional academics with paid work assignments in industry, business, government and nonprofit organizations. This combination enhances the student's academic knowledge, personal development and preparation for a professional career, and provides broad exposure to one's academic major. Students may work part time while taking classes or alternate semesters of work and study.

The Cooperative Education Program is open to undergraduate and graduate students in most majors. To be eligible, students must:

- have declared a major.
- have completed at least 24 credits.
- have a 2.5 GPA or better for sophomores.
- have a 2.0 GPA or better for juniors and seniors.

Prior to placement, a student must have eligibility verified and must complete a Cooperative Education orientation session. Once placed, a student must enroll in the appropriate noncredit Cooperative Education course. Special administrative fees are shown in the Schedule of Classes each semester. Some credit arrangements are available through the academic departments.

Students that are graduating within the academic year use the Career Center to

interview with business, industry, government and education representatives who visit on campus to recruit prospective graduates for permanent positions in their respective organizations. Students are encouraged to sign up as participants in the Career Center's Web-based resume referral system called CareerConnections in order to be referred to employers and have access to job listings.

Courses in cooperative education (COOP)

COOP 298 Cooperative Education Experience

Semester course; the student works a maximum of 20 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

COOP 398 Cooperative Education Experience

Semester course; the student works a maximum of 40 hours per week, completes all off-campus/on-campus assignments. No credit. Open to students who have been placed in an approved co-op position with an agency, business, industry or institution.

University Counseling Services

Charles Klink

Director (2001)
B.A. 1978 Goshen College
M.A. 1984 The Ohio State University
Ph.D. 1993 The Ohio State University

Students with personal, social, psychological or educational needs may find help from University Counseling Services. The goals of UCS are to promote students' academic success and personal growth as well as to assist students who are experiencing stress or crisis.

University Counseling Services offers services from two offices, one on each campus. The contact information for each follows.

Academic Campus

University Student Commons
907 Floyd Ave., Room 238
P.O. Box 842525
Richmond, VA 23284-2525
(804) 828-6200

Monday – Friday 8 a.m. – 5 p.m.

During semester break, spring break and summer, the office closes at 4:30 p.m. daily on both campuses.

MCV Campus

Hunton Hall
302 N. 12th St., Third Floor
P.O. Box 980238
Richmond, VA 23298-0238
(804) 828-3964

Monday, Wednesday,
Thursday, Friday 8 a.m. – 5 p.m.
Tuesday 11 a.m. – 8 p.m.

University Counseling Services can meet students' needs in a variety of ways:

Counseling and psychotherapy

Individual and couples work is designed to deal with personal and interpersonal issues.

Group counseling

Ongoing psychotherapy groups focus on personal and social concerns.

Psychiatric services

Limited services include medical evaluation, diagnosis and treatment with psychotropic medication.

Consultation and outreach

Presentations, workshops and staff consultation are available to student organizations, academic departments and other groups on issues relevant to each group's needs.

Safe zone

Workshops for faculty and staff designed to reduce homophobia and heterosexism.

Career counseling

Individual sessions designed to clarify career direction and satisfaction.

Counseling services are free except for small fees associated with some assessment measures.

University Student Health Services

Dr. Betty Anne Johnson

Director (1985)
B.A. 1973 Colorado Women's College
Ph.D. 1981 University of Iowa
M.D. 1982 Harvard Medical School

Academic Campus

Sport Medicine Building
1300 W. Broad St., Suite 2200
P.O. Box 842022
Richmond, VA 23284-2022
(804) 828-8828
Fax: (804) 828-1093

Monday – Thursday 8 a.m. – 5 p.m.
Friday 10 a.m. – 5 p.m.

MCV Campus

VMI Building
1000 E. Marshall St., Room 305
P.O. Box 980201
Richmond, VA 23298-0201
(804) 828-9220

Monday – Thursday 8 a.m. – 4:30 a.m.
Friday 10:30 a.m. – 4:30 p.m.

University Student Health Services offers quality primary health care for treatment of acute and chronic illness. In addition to diagnosis and treatment, the service emphasizes prevention of illness through screening, counseling and health education. Full-time students are required to participate and must pay the student health fee. Part-time students who elect to participate in the service must pay the full student health fee.

The service is staffed by physicians, physician assistants, nurse practitioners, registered nurses, pharmacists and health educators.

Services offered by USHS include general medical, allergy and gynecology clinics, pharmacy and laboratory, after-hours emergency care, and health education and public health programs.

All educational activities sponsored by USHS are available to all students.

Treatments for injury and hospitalization are not covered by USHS, and students are urged to join the university-sponsored group health plan.

Immunization requirements

Virginia law requires all full-time students to submit an official certification of immunization to University Student Health Services prior to registration. Immunization records may be mailed, faxed or brought to Student Health Services at the Academic Campus as listed previously.

All students whose birth country is not the United States or Canada, regardless of enrollment status, are required to complete tuberculosis screening at University Student Health Services upon arrival to campus.

Do not mail, fax or turn in your immunization record anywhere else. (If record is turned in at STAR, put it in the box marked immunizations.) Do not send immunization records to the Office of Undergraduate Admissions.

It is strongly recommended that all students make copies of their immunization record form. For questions or a copy of the immunization certificate, call the Academic Campus office as listed previously.

The immunization form can be signed by the student's health care provider after all the necessary information has been transferred onto the form. Copies of immunization dates from military records, health department records and high school records may be submitted. An immunization form can be found in the Handbook for Admitted Students and on the Web at <http://www.students.vcu.edu/health/immunizations>.

If documented evidence of required immunization proof cannot be provided, students must get the necessary immunizations from their health care provider, local health department or through Student Health.

Students born after Dec. 31, 1956

For all students born after Dec. 31, 1956, student must provide:

Tetanus: Documentation of tetanus booster within the last 10 years.

Rubeola (red measles): Two doses, both given after the first birthday at least one month apart and after 1967, or physician certification of diagnosis of rubeola, including the month and year of occurrence, or documentation of positive rubeola titer with copy of lab result.

Mumps: One dose given after first birthday and after 1967, or physician certification of diagnosis of mumps, including month and year of occurrence, or documentation of positive mumps titer with copy of lab result.

Rubella (German measles): Documentation of rubella vaccination given after the first birthday and after June 9, 1969, or documentation of positive rubella titer with copy of lab result.

MMR given after first birthday and after April 30, 1971, may be used to document rubeola, mumps and/or rubella immunization. Two MMRs would be needed to fulfill rubeola requirement.

Tuberculosis screening: Required of all entering students. Not all students will require placement of the TB skin test, however. Refer to Immunization Certificate.

Meningococcal vaccine: Vaccine or signed waiver required by Virginia state law.

Students born prior to Jan. 1, 1957

For students born prior to Jan. 1, 1957, only, the student must provide:

Tetanus: Documentation of tetanus booster within the last 10 years.

Rubella (German measles): Documentation of rubella vaccination given after the first birthday and after June 9, 1969, or documentation of positive rubella titer with copy of lab result.

Tuberculosis screening: Required of all entering students. Not all students will require placement of the TB skin test, however. Refer to Immunization Certificate.

Meningococcal vaccine: Vaccine or signed waiver required by Virginia state law.

Health insurance

The university is not responsible for accidents occurring to students in connection with class, laboratory, shop, fieldwork, athletics, student activities, travel or any other activity.

The university offers its students an approved insurance plan providing substantial benefits at group rates. The insurance extends for a 12-month period beginning Aug. 18, or from the beginning of the second semester to the next Aug. 18, and includes coverage for accidents, hospitalization, medical, surgical and other benefits for illnesses. Married students may enroll spouses and children. The university strongly recommends, but does not require, that all students enroll in student group health insurance.

Complete information about enrolling is available from University Student Health Services at either campus.

Health promotion

The Office of Health Promotion, located in the Sports Medicine Building, Suite 2200 provides information, programming and other resources in support of students' continuing health and well-being. The resource library includes videotapes and

Internet access as well as printed publications. The staff is available for presentations to classes and student organizations on a variety of topics related to college student health issues. The staff also supports and trains a peer-education program called Project REACH (Rams Educating About Campus Health). This peer program addresses substance abuse, nutrition, sexuality and stress management.

Sexual assault/substance abuse education programs

A component of the Office of Health Promotion is Sexual Assault/Substance Abuse Services. The office serves as the main point of contact for information and services in these areas. The coordinators provide or arrange for presentations about alcohol and other drugs or issues related to sexual assault for student groups, classes and special events such as Alcohol Awareness weeks and Sexual Assault and Domestic Violence Awareness Month. This office also offers a primary prevention program on alcohol and other drugs for students and professionals. This office offers leadership for the campus on sexual assault policy, alcohol/other drug policy, protocol, educational programming and services development.

Sexual Assault Services
(804) 828-2085

Substance Abuse Services
(804) 828-2086

University Housing and Residence Education

Bernard A. Mann

Director of Housing (1970)
M.S.Ed. 1973 Virginia Commonwealth University

Jane M. Grassadonia

Director of Residence Education (1993)
B.A. 1983 Washington State University
M.S.Ed. 1991 University of Rochester

Living accommodations on campus are provided for the convenient housing of students and to further the educational objectives of the university. Approximately 3,000 students live in university-operated housing, which varies in capacity and style, including high-rise residence halls, suites and garden-style apartments.

VCU believes residence hall life provides an opportunity for students to gain a variety of personal learning experiences that supplement and complement the formal learning gained in classrooms and laboratories. The housing program seeks to make residences a place where students learn to meet and live successfully with other students and to assume major responsibility for their own lives and the atmosphere of their living environment. University housing also helps students participate in many educational and social programs and develop leadership skills through participation in residence hall, governmental, social and judicial organizations.

Residence education staff members facilitate these objectives and are always available to assist students in the residence areas. Although acceptance for admission to the university does not guarantee housing facilities to the new student, all students in past years desiring student housing have been accommodated. See the "Room and Board Fees" section in the "Expenses and Financial Aid" chapter of this bulletin.

Rooms in university-operated housing are rented for the entire academic year of nine months or for 12 months. Single-semester contracts are available only to new students who enter the university and sign contracts to enter the residence hall beginning in the spring semester. The student, parent of the student or student guardian contracts to pay the rent for this period.

All rooms are furnished adequately and are wired for data and telephone. As the buildings vary in age and occupancy, it is best to wait until arrival to decide on any extra personal items. Students should provide their own pillows, bedspreads, linens and blankets. Coin-operated washers and dryers are located in each building.

For more information, contact the central office, University Housing and Residence Education, Gladding Residence Center, 711 W. Main St., P.O. Box 842517, Richmond, VA 23284-2517; telephone (804) 828-7666.

Recreational Sports

Susan Ivie Boling

Director (1983)
B.S. 1975 University of Iowa
M.A. 1977 University of Iowa

A variety of facilities, services and programs designed to meet the leisure and

health needs of the VCU community are coordinated by the Recreational Sports staff. All currently enrolled students with valid identification are eligible to use all facilities. All facilities also are available to people from the following groups who purchase a membership: spouses of students, alumni, spouses of alumni, faculty, spouses of faculty members, classified and hourly staff, spouses of classified and hourly staff members, and employees of the Virginia BioTechnology Research Park and VCU Health System's MCV Physicians. Selected full-time contract employees are eligible for membership. (Membership for spouses of Research Park, contract and MCV Physicians members are not offered at this time.)

Recreational sports facilities

Stuart C. Siegel Center

The Stuart C. Siegel Center includes an aerobic/multipurpose room; a 7,000-square-foot fitness center; a multipurpose gym for indoor soccer, floor hockey, volleyball and basketball; and a wellness resource center. The main offices for Recreational Sports are located in this facility, (804) 827-1100.

Cary Street Recreation Complex

The Cary Street Recreation Complex offers a gym floor that can be used to play basketball, volleyball or badminton; a fitness center; a wooden fitness/dance floor; four racquetball courts; and a large assortment of fitness equipment. The complex also features a lighted artificial-turf field, jogging track and lighted outdoor basketball courts, (804) 828-6219.

MCV Campus Recreation and Aquatic Center

The MCV Campus Recreation and Aquatic Center, located at 10th and Turpin streets, includes a gym with playing courts and workout areas complemented by the Aquatic Center, housing a 25-meter, six-lane swimming pool and a lighted outdoor tennis court.

The Recreation Center features a gym floor that can be used for basketball and volleyball; a fitness center with selectorized and free weight equipment; numerous racquetball and squash courts; and multipurpose rooms.

The Aquatic Center features recreational swimming, learn-to-swim classes, and water fitness and sports activities. For additional information, telephone (804) 828-6100.

Additional facilities

Additional facilities on the Academic Campus include lighted tennis courts near the Cary Street Complex, which are administered by the Athletic Department. An indoor pool is available on a limited basis in the basement of the Franklin Street Gym. For additional information, call (804) 827-1100.

Recreational sports programs

Intramural sports

Available on both campuses, these sports offer students organized men's, women's and corecreational leagues and tournaments. Activities include traditional team sports such as flag football, soccer, volleyball, basketball, indoor soccer, floor hockey and softball as well as individual and dual sports such as tennis, racquetball and table tennis.

Fitness programs

Offered at both recreation centers, these programs include classes in step aerobics, weight training, yoga, dance and more. Special programs include wellness days, personal training and special Stress Relief Week activities.

Sport clubs

These clubs give students the opportunity to train and compete on a higher level than is offered by the Intramural Sports Program. For information about these clubs or about starting a new club, call Recreational Sports.

Special events

One-day events are offered to provide short-term opportunities to participate.

Outdoor Adventure Program and Outing Rental Center

This program and center provide a variety of outdoor recreational opportunities for students. Organized excursions with experienced trip leaders include camping, kayaking, white-water rafting, canoeing, caving, climbing, bicycling, backpacking and

cross-country skiing. Many OAP trips are designed for beginners. All necessary equipment is included in the trip fees. Summer and holiday trips are provided including downhill skiing in Vermont, backpacking in the Grand Canyon and more.

For students planning their own outdoor activities, equipment can be rented at the Outing Rental Center. For a nominal fee, canoes, backpacks, tents and cross-country skis can be rented on a short-term basis.

The Outdoor Adventure Leadership Program teaches interested student volunteers a variety of outdoor skills and prepares them to lead wilderness trips.

Information on trips and rentals is available at the Outing Rental Center. For additional information, call (804) 828-6004.

University policies and procedures

A number of policies and regulations at VCU affect students, and many of these are printed in the general information chapters of this bulletin. Three policy documents are of particular interest to students.

The VCU Rules and Procedures document outlines the rights, responsibilities and privileges of each member of the university community and describes cases when disciplinary action, including separation from the university, may be taken against a member of this community as a result of prohibited behavior as outlined in this document.

The VCU Honor System defines academic dishonesty and provides a procedure for judging alleged violators of academic integrity.

The Grade Review Procedure outlines the process whereby students may appeal grades that they feel have been assigned unfairly.

Each student is responsible for being familiar with the provisions of all university policies and regulations. The three policy documents described above are printed in full in the VCU Resource Guide, which is distributed each year on both campuses and made available on the Web. Students who have questions about these or other policies are invited to call or visit.

Office of the Associate Vice Provost and Dean of Student Affairs

Sitterding House
901 Floyd Ave., P.O. Box 843017
Richmond, VA 23284-3017
(804) 828-8940

Office of the Associate Dean of Student Affairs, MCV Campus

Bear Hall, Room 104
10th and Leigh streets, P.O. Box 980243
Richmond, VA 23298-0243
(804) 828-0525

VCU Honor System

VCU recognizes that honesty, truth and integrity are values central to its mission as an institution of higher learning.

And so, VCU must act to maintain these values, even to the point of separating those who violate them from the university. The VCU Honor System describes the responsibilities of students, faculty and administration in upholding academic integrity, while respecting the rights of individuals to the due process offered by administrative hearings and appeals. All people enrolled in any course or program at VCU and all people supervising the learning of any student are responsible for acting in accordance with the provisions of the VCU Honor System.

The honor system gives definitions and illustrative examples of six acts which are violations of the policy, namely: cheating, plagiarism, facilitating academic dishonesty, abuse of academic materials, stealing and lying. There are six penalties for students found guilty of these honor system violations. They are honor probation, assignment of grades, suspension, expulsion, revocation and other relevant sanctions.

See the VCU Honor System, printed in full in the VCU Resource Guide.

First Year Student Services

Lelia E. Brinegar

Director (2002)
B.A. 1994 Longwood College
M.Ed. 2001 The College of William and Mary

The programs administered by this office are designed to serve the needs of all entering freshmen and new transfer students and their families. For more information about any of the following programs, contact First Year Student Services, located in the Student Commons, 907 Floyd Ave., Room 106, Richmond, VA 23284-2505; telephone (804) 828-3700.

Student Testing, Advising and Registration

Student Testing, Advising and Registration, offered each summer, fall and spring provides new students the opportunity to take placement tests, meet with a faculty adviser and register for the first semester's classes. Students' families also are provided programs on VCU services. Attendance at this program is required of all new students.

Welcome Weekend

Welcome Weekend is a week-long program for new students that takes place immediately before fall classes begin. During this time, students meet faculty, staff, administrators and upper-class students. They attend information sessions, workshops and campus tours.

VCU Family Weekend

VCU Family Weekend is designed to bring parents and families back to see the university after students have registered and attended classes. Each school and college of the university has a chance to meet with the families of its students. Family members participate in a number of programs and special events that highlight the faculty, students and activities of VCU.

Office of Multicultural Student Affairs

Napolean L. Peoples

Director (1970)
B.A. 1968 Wilberforce University
M.Ed. 1969 Kent State University
Ed.S. 1970 Kent State University
Ph.D. 1977 Kent State University

The Office of Multicultural Student Affairs provides supportive services to ethnic, racial and cultural minority groups that are substantially represented at the university. VCU is committed to a multicultural, diverse student body, and OMSA offers assistance to students and faculty in support of this commitment.

OMSA serves as an advocate group for multicultural students' concerns and interests. OMSA provides advice to a wide array of multicultural groups.

OMSA also advises groups and individuals seeking improved understanding of

ances and cultures represented at VCU. In this way, the office seeks to supplement the opportunities for student growth and development at the university.

All students are urged to visit the Office of Multicultural Student Affairs located in Student Commons, 907 Floyd Ave., Room 215, P.O. Box 843080, Richmond, VA 23284-3080; telephone (804) 828-6672.

Student Academic Support Services and Services for Students with Disabilities, MCV Campus

Cheryl Chesney-Walker

Coordinator, Services for Students with Disabilities (2003)
B.S. 1982 Bowling Green State University
M.Ed. 1994 University of Toledo

This support is a personal service, located administratively under the Office of the Vice President for Health Sciences, designed to help individuals find ways to deal with the demands imposed by the health sciences curricula and to help them become effective and efficient learners. Students meet with an academic skills counselor for an assessment of their learning needs. The counselor will then offer suggestions and strategies for dealing with their concerns.

Student Academic Support Services activities include counseling for academic self-concept issues, anxiety reduction, and learning strategies such as analyzing and organizing information, study methods, time management, test-taking skills and writing skills. Limited screening for learning disabilities and attention deficits is available. Students are referred to other sources for formal evaluation if disabilities are suspected.

Services for students with disabilities for the MCV Campus are provided by this office. For further information, refer to the Disability Support Services listing in this bulletin.

The SASS office is located in the VMI Building, 1000 E. Marshall St., Room 301, P.O. Box 980124, Richmond, VA 23298-0124; telephone (804) 828-9782 or (804) 828-4608 TDD.

Disability Support Services

Joyce Knight

Coordinator, Office for Disability Support Services (2002)
Certificate, Legal Assisting 1975 J. Sargeant Reynolds Community College
A.A. 1977 J. Sargeant Reynolds Community College
B.S. 1978 Virginia Commonwealth University
M.S. 1981 Virginia Commonwealth University

Academic Campus

Student Commons
907 Floyd Ave.
P.O. Box 842529
Richmond, VA 23284-2529
Voice/TDD: (804) 828-2253
Fax: (804) 828-1944

PDA – Disability Resources
<http://www.students.vcu.edu/pda>

Access VCU, a handbook for students with disabilities
<http://www.vcu.edu/eoaa/stuada.html>

VCU is committed to providing students with disabilities equal opportunities to benefit from all programs, services and activities offered. Federal and state laws define disabilities as physical or mental impairments that substantially limit one or more major life activities, such as caring for one's self, performing manual tasks,

walking, seeing, hearing, speaking, breathing, learning and working. Disabilities include, but are not limited to, multiple sclerosis, migraines, chronic fatigue, traumatic brain injuries, cancer, diabetes, lupus, epilepsy, deafness, blindness, attention deficit disorder, specific learning disabilities and psychological disorders.

The Office for Disability Support Services determines appropriate academic adjustments such as program and exam modifications, classroom accommodations and auxiliary aids.

Students with disabilities are responsible for self-identification prior to requesting services and may do so at any time by presenting documentation to their campus coordinator.

Enrollment Services

Student Accounting Department

See the "Expenses and Financial Aid" chapter of this bulletin.

Office of Undergraduate Admissions

See the "Admission to the University" chapter of this bulletin.

Office of Records and Registration

See the "Academic Regulations and General Degree Requirements" chapter of this bulletin.

Office of Financial Aid

See the "Expenses and Financial Aid" chapter of this bulletin.

Interdisciplinary Programs

Bachelor of Interdisciplinary Studies
1000 W. Franklin St. • P.O. Box 843079
Richmond, VA 23284-3079
(804) 828-8420 • Fax (804) 828-4983
<http://www.has.vcu.edu/bis> • bis@vcu.edu

Department of Rehabilitation Counseling
School of Allied Health Professions
P.O. Box 980330
Richmond, VA 23298-0330
(804) 828-1132

Bachelor of Interdisciplinary Studies Program

The Bachelor of Interdisciplinary Studies provides opportunities for students to combine disciplines in unique ways. Students can apply for a nontraditional, individualized interdisciplinary course of study by designing their own curriculum, or a prescribed interdisciplinary specialization in women's studies. Refer to the Bachelor of Interdisciplinary Studies program within

the "College of Humanities and Sciences" chapter of this bulletin for application and curricula requirements.

Rehabilitation services

Undergraduate courses in rehabilitation services are offered, as resources permit, in interdisciplinary cooperation with other majors. Such offerings are Pathways, a unique interdisciplinary program concentration designed for students interested in pursuing alcohol and drug rehabilitation studies, and the Bachelor of Interdisciplinary Studies Program with a focus in a rehabilitation services area. For specific information see the Department of Rehabilitation Counseling in the "School of Allied Health Professions" chapter of this bulletin.

Pathways

Pathways, initiated in the spring of 1996, is a unique interdisciplinary program

concentration designed for students from a wide variety of academic departments who are interested in studies in substance abuse education and rehabilitation. A sequence of recommended courses is offered to students who are majoring in psychology, criminal justice, social work, pharmacy, nursing and rehabilitation counseling. Other academic and professional disciplines also are included and welcome to participate in the program. The sequence of course work depends upon the level of intensity sought by the student, and it may range from a single introductory course to a complete specialization. Pathways enables students to select a curricular path which matches their substance abuse rehabilitation interest regardless of their discipline. The program is available to undergraduate students and is arranged in collaboration with the student's major adviser and/or the director of the Rehabilitation Substance Abuse Counselor Education concentration, Department of Rehabilitation Counseling.

Office of Community Programs

920 W. Franklin St. • P.O. Box 843062
Richmond, VA 23284-3062
(804) 828-1831 • Fax (804) 828-2756
<http://www.vcu.edu/ocp>

Catherine W. Howard

Director, Office of Community Programs and
Associate Professor of Psychology
B.A. 1979 Davidson College
M.S. 1983 University of Maryland
Ph.D. 1988 Pennsylvania State University

The Office of Community Programs seeks to engage Virginia Commonwealth University with its community to enhance the quality of life for all who work, live and study in the Richmond metropolitan area. The Office of Community Programs provides VCU with a centralized administrative unit focused on community engagement and nontraditional programs. In keeping with VCU's mission, the office:

- facilitates and coordinates innovative academic programs, on and off campus, to enhance the community's access to VCU.
- supports the involvement of faculty and students on the academic and medical campuses in community partnerships.
- creates opportunities for multidisciplinary, community-based collaborations that integrate research, teaching and service.

The Office of Community Programs resides within Academic Affairs and assumes administrative responsibility for the following academic programs: winter intersession classes; summer studies; off-campus courses; off-campus graduate art courses, including the Master of Interdisciplinary Studies degree; service-learning, including the Service-Learning Associates Program; Especially for Nonprofit Organizations; the Retired Faculty Council and American Humanics. In addition, the office

administers various outreach initiatives that address pressing social concerns in the community. Among these programs are the Community Service Associates Program, VCU AmeriCorps, America Reads, the Carver-VCU Partnership and the Virginia Mentoring Program.

VCU America Reads Program

Franklin R. Wallace

B.F.A. 1987 Virginia Commonwealth University

The VCU America Reads Program places college work-study students in local elementary schools to provide comprehensive reading support to students who are below grade level in reading. The program works in partnership with Richmond City Schools as well as schools in the surrounding counties to identify elementary school children who are in need of extra assistance. Reading support is provided at partner schools during the normal school day as well as during academically focused after-school programs. Program applications are available throughout the year at the following locations:

- Office of Community Programs located at 1103 W. Marshall St.
- Office of Community Programs located at 920 W. Franklin St.
- VCU Career Center and Student Activities Center located in the Student Commons
- VCU Office of Financial Aid located at 901 W. Franklin St.

Applications also may be downloaded at <http://www.vcu.edu/ocp> or by visiting the America Reads Web site at <http://www.ed.gov/inits/americanreads> or they can be mailed upon request by calling (804) 828-8850.

American Humanics

American Humanics, Inc. (AH) is a national organization that collaborates with affiliated university programs and nonprofit agencies to recruit, prepare and place students in meaningful careers with nonprofit organizations. The AH certificate program provides both curriculum and applied experience to equip students from any major with the necessary skills for employment in the nonprofit field.

VCU students interested in working in nonprofit organizations who participate in the program gain:

- exposure to national nonprofit network of partners and career options.
- increased sense of being connected and belonging to the community.
- opportunity for potential internship scholarships.

For more information call (804) 828-8824 or visit <http://www.vcu.edu/ocp>.

VCU AmeriCorps

Franklin R. Wallace

B.F.A. 1987 Virginia Commonwealth University

Established in 1995, the AmeriCorps program at VCU has an educational focus with the goal of helping improve the literacy skills of local children and families. Reading by third grade has been identified by the Richmond community as a critical preventive strategy in addressing the health and safety needs of children in the metro area. VCU AmeriCorps members address this need by providing comprehensive reading support to elementary school students who are struggling academically. Members also enhance family literacy skills and parent involvement at partner schools by lending

support to existing services as well as developing new programs to meet specific needs. Applications are available beginning in March at the following locations:

- Office of Community Programs located at 1103 W. Marshall St.
- Office of Community Programs located at 920 W. Franklin St.
- VCU Career Center and Student Activities Center located in the Student Commons
- VCU Office of Financial Aid located at 901 W. Franklin St.

Applications also can be downloaded at <http://www.vcu.edu/ocp> or by visiting the AmeriCorps Web site at <http://www.americorps.org> or applications can be mailed upon request by (804) 828-8850.

Carver-VCU Partnership

Leah S. Lamb

B.A. 1997 Prescott College
M.S.W. 2002 Virginia Commonwealth University

In the spirit that partnerships, not fences, promote safe and nurturing communities, VCU has created a partnership with its northern-boundary neighbor, the Carver community. The Carver-VCU Partnership strives to create a shared urban community with a commitment to improving the neighborhood's quality of life including its health, community development, youth development, safety and community school, while extending the experience of the community into the classroom and the university. For more information contact Leah Lamb at (804) 828-8850 or visit <http://www.vcu.edu/ocp>.

Community Service Associates Program

The Community Service Associates Program (CSAP) provides opportunities for faculty to assist with projects of neighborhood groups, civic associations, governmental or professional organizations, and nonprofit agencies. Each project is individually designed to be of mutual benefit to the agency and the faculty member. As an associate, the faculty member brings expertise to bear on a problem or issue of importance to

the community while concurrently receiving the benefits of "hands-on" experience. Although the primary focus of this program is on community service, experience and perspective gained by associates often translate into enhanced teaching and scholarship. For more information call (804) 828-8824 or visit <http://www.vcu.edu/ocp>.

Especially for Nonprofit Organizations

Rebecca M. Halloran

B.A. 1997 University of North Carolina at Chapel Hill

Since 1997, the university has been a leading partner in a community collaborative that sponsors the Especially for Nonprofit Organizations program. In addition to being a sponsoring partner, VCU also manages the program. Especially for Nonprofit Organizations provides educational and networking opportunities as well as capacity building for the vast network of nonprofit organizations in the greater Richmond area. The program is open to any paid or volunteer staff member of a nonprofit organization and offers the chance to earn both academic credit and certificate of achievement in nonprofit management (after twelve courses). Classes usually meet for two days, one week apart, from 9 a.m. to 3 p.m. throughout the city of Richmond. An annual conference and certificate awards ceremony are held each fall. Class and conference topics include, but are not limited to, strategic management, communications, legal issues for nonprofits and technology skills. For more information contact Rebecca Halloran at (804) 827-0246, rmhallor@vcu.edu, or visit <http://www.vcu.edu/ocp>.

Intersession

Sue F. Munro

B.A. 1965 Wheaton College
M.A. 1966 University of Tennessee

VCU schedules a winter Intersession between the fall and spring semesters. The session normally begins on Dec. 27 and meets on 11 days, including university holidays and Saturdays. During Intersession, classes meet from 9 a.m. to 2 p.m. with an hour break for lunch. It is possible to take

one undergraduate three-credit class during this time period in subjects as diverse as art history, business, literature, philosophy, political science and speech. Students register as part of spring registration and the Intersession fee is tuition only — no additional fees are assessed. Registration is open to all qualified students. Visiting students home for the holidays are encouraged to take one of these Intersession courses and earn three transferable credits. For more information visit <http://www.vcu.edu/ocp>.

Off-campus Academic Programs

Edward Howard

B.S. 1995 Virginia Commonwealth University

The university provides numerous opportunities for off-campus study in the Richmond metropolitan area and throughout the state. Off-campus credit classes feature the same course work available on campus and the courses are fully degree-applicable within the normal standards of the college and schools within the university.

Many of VCU's off-campus courses are offered in response to an expression of need from various groups in the state. VCU offers, for example, courses in education for public school teachers at a number of local high schools and serves employees of local business organizations with on-site credit instruction. For more information contact Edward Howard at (804) 828-8819 or by e-mail at eahoward@vcu.edu, or visit <http://www.vcu.edu/ocp>.

Off-campus Graduate Art

Sue F. Munro

B.A. 1965 Wheaton College
M.A. 1966 University of Tennessee

Since 1993, VCU has offered off-campus graduate classes in both studio art and art education in locations from the Washington, D.C. area to Tidewater. Classes are open to all qualified students (persons with undergraduate degrees in art or equivalent experience), but are particularly designed for art teachers interested in license renewal, a graduate degree program or personal enrichment. During the fall and spring semesters, classes meet one night a week, usually from 4:30 to 8:30 p.m. In the summer semester,

classes are scheduled for 10 all-day workshops over a two- or three-week period. Two degree programs are offered: the Master of Art Education and the Master of Interdisciplinary Studies in Interdisciplinary Art, but students need not be in a degree program in order to take classes. For more information visit <http://www.vcu.edu/ocp>.

Master of Interdisciplinary Studies in Interdisciplinary Art

Sue F. Munro

B.A. 1965 Wheaton College
M.A. 1966 University of Tennessee

The Master of Interdisciplinary Studies in Interdisciplinary Art degree is jointly administered by the School of the Arts and the Office of Community Programs. This program enables off-campus students to earn a graduate degree by combining art courses, both studio and academic, within established guidelines. It is not the equivalent of a master of fine arts degree, but is an additional option for qualified persons, especially art teachers, who are interested in studio art classes. Classes are offered in high school art rooms from Fairfax County to Virginia Beach, in the late afternoon during the regular school year and in all-day workshops during the summer. The M.I.S. degree requires the completion of 39 graduate credits, including at least nine and no more than 15 credits in each of two focus areas. Focus areas include, but are not limited to, crafts, computers and the arts, painting,

photography, printmaking, drawing and sculpture. In addition, the student must complete from three to 15 credits of art electives and six credits of an approved final project, including a graduate exhibition and a final paper. For more information visit <http://www.vcu.edu/ocp>.

Service Learning

Catherine W. Howard

B.A. 1979 Davidson College
M.S. 1983 University of Maryland
Ph.D. 1988 Pennsylvania State University

Service learning integrates community service with traditional academic courses in order to enhance academic learning, facilitate the development of students into fully engaged community members and meet community identified needs. Each student participates in an organized community service project that directly relates to the subject matter of the course and which meets community-identified needs. The students then participate in reflection activities, which are facilitated in such a way as to increase their understanding and application of course content and enhance their sense of civic responsibility. The community organization defines the service need and the students learn and grow from the service through reflection on their experience. A listing of service-learning courses is provided in the Schedule of Classes each semester. For more information visit <http://www.vcu.edu/ocp>.

Summer Studies

Sue F. Munro

B.A. 1965 Wheaton College
M.A. 1966 University of Tennessee

Summer Studies at VCU is an important part of the total educational program of the university. VCU continues to offer the largest, most comprehensive summer school in the commonwealth of Virginia. Classes are scheduled in nine different sessions, including evening. This flexibility in scheduling seeks to maximize enrollment opportunities for students and, with careful scheduling, students may earn up to 15 credits during summer. Classes are available in all departments of the College of Humanities and Sciences and in most departments within the schools of the Arts, Business and Education. Selected courses are offered by the schools of Social Work and Engineering. Classes are open to all qualified students, including professionals from the community, students visiting from other universities and colleges, and special students updating skills, preparing for a career change or developing a personal interest.

The Office of Community Programs works with university departments to establish and publish the summer Schedule of Classes, manages the faculty contract and payment process, and problem solves for summer students and faculty. For additional information or help, call (804) 828-1831 or visit <http://www.vcu.edu/ocp>.

Office of International Education

916 W. Franklin St. • P.O. Box 843043
Richmond, VA 23284-3043
(804) 828-8471 • Fax (804) 828-2552
<http://www.vcu.edu/oie>

Peter S. Kirkpatrick

Executive Director
B.A. 1986 University of Richmond
M.A. 1988 University of Virginia
Ph.D. 1992 University of Virginia

The Virginia Commonwealth University Office of International Education promotes a variety of faculty and student activities in a global context. OIE's mission is to advance the internationalization of the university in cooperation with the schools and the college, as well as other administrative offices. OIE currently offers programs and services in faculty exchanges, university overseas linkages and agreements of cooperation, education abroad and student exchanges, international student and scholar advising, and international student recruitment and admissions. Additionally OIE offers an intensive English Language Program.

The executive director advises faculty, departments, schools and the college in their efforts to expand their international activities and linkages. The executive director serves as the initial contact for off-campus groups and agencies requesting information on international activities at the university as well as drafts, in consultation with the appropriate VCU constituencies, agreements with overseas institutions.

Education Abroad

Jennifer L. Ludovici

B.A. 1993 James Madison University
M.Ed. 1995 James Madison University

Founded in the belief that an international and multicultural perspective is invaluable to university students today, VCU encourages students from all majors and fields of interest to include study abroad and international exchange as part of their educational

career. The benefits of education abroad are many. Students will be able to understand and function in different cultures, thereby developing a broader understanding in the ways the world works; increase knowledge of and facility in a foreign language; understand differences in educational styles and systems; and increase employment marketability upon graduation.

To accomplish these goals successfully, students are encouraged to study in another cultural setting for a summer, semester or full academic year within their degree. VCU Education Abroad was established to assist students in accomplishing these goals by providing the following services: information, advising and administration. VCU offers the following programs to encourage students to participate in overseas and external study.

Participants must be in good standing with the university with two full semesters of consecutive, successful full-time enrollment prior to participation. Please note that individual program requirements may vary. As always, the safety of our students comes first. Therefore, VCU does not support study abroad options in countries where the U.S. State Department has issued a Travel Warning.

Program offerings

VCU Summer Study Abroad

Each year faculty members lead short-term summer study with intensive instruction in an international context. Students may elect courses ranging from an intensive foreign language experience, to art and business programs. New programs are created every year in countries as diverse as Barbados, Spain, Guatemala, Peru, Italy, Germany, Mexico, Greece and France.

International Student Exchange Program (ISEP)

ISEP is a network of 85 institutions in 40 countries, providing a full immersion, direct

enrollment experience for a summer, semester or academic year. Although particularly suited for the student interested in foreign language acquisition, courses instructed in English in a variety of academic areas are now widely available. Some locations' program charges are based on VCU in-state tuition, room and board, and university fees, resulting in the most affordable option for study abroad.

University-wide exchanges

VCU has negotiated a number of direct student exchange agreements arising out of specific interest in the university community. You pay your tuition and fees at VCU, and enroll directly in your host university.

Independent Study Abroad

Independent Study Abroad is for students who wish to study in a field not covered by any of the above study-abroad options. Students may elect to participate in a program offered by another university or organization. VCU Education Abroad will assist you in identifying and applying to the program, maintaining your VCU status while away, and securing financial aid where appropriate.

Except summer programs offered for VCU credit, all credit received through education abroad is transfer credit. Grades will not transfer and are not calculated into the GPA.

Immigration Services

Ingrid A. Mercer

B.A. 1998 University of Pittsburgh

Immigration Services of the OIE offers international student advising to assist international students with personal, financial, cultural and social adjustment issues, and to help guide them within the university community so they may successfully pursue their academic goals. The interna-

tional student advisers assist international students and scholars in maintaining their nonimmigrant student status by issuing and processing the necessary immigration documentation in accordance with relevant U.S. immigration rules and regulations.

English Language Program

Nancy A. Beasley

B.A. 1979 University of Massachusetts
M.A. 1981 Gordon-Conwell Theological Seminary
M.A. 1988 University of Massachusetts

The English Language Program offers an intensive university preparation language program for non-native speakers of English and serves international students, U.S. citizens, permanent residents and refugees.

Core courses are offered at 10 levels of instruction — beginning through advanced — in five eight-week sessions per year. Core courses include writing and grammar, speaking, listening, reading and vocabulary, pronunciation, and accent reduction. Additional electives in American language and culture, conversation partners and cultural/educational activities also are available to students.

Admission to the ELP may be recommended by the VCU Undergraduate and International Admissions offices at the time of the application review. Students who want only English as a second language courses may apply directly to the program.

Placement in the ELP is based on the results of the English Language Placement Examination, a three-hour test in four parts: listening, reading, writing and an oral interview. Students receive their test results by meeting individually with an adviser, who makes recommendations, answers questions and registers students in the appropriate ELP course(s).

For more information, contact the English Language Program Office in Room 205 at 916 W. Franklin St.; by phone at (804) 828-2551; by fax at (804) 828-2552 or by e-mail at oielp@vcu.edu.

International Admissions

Vacant

VCU encourages qualified international students, to seek admission to the university through the International Admissions office. For complete information and application materials write, fax, e-mail or download the application from the Web and contact International Admissions, Virginia Commonwealth University, 916 W. Franklin St., P.O. Box 843043, Richmond, VA 23284-3043, USA; call (804) 828-6016 or e-mail vcuia@vcu.edu or access the Web at <http://www.vcu.edu/oiel/ia>.

Applicants must complete the Application Form and submit academic records that demonstrate successful completion of secondary school education — usually 12 years of pre-university study in their own country.

As required by U.S. regulations and by VCU admission policies, nonimmigrant applicants must demonstrate satisfactory academic achievement, adequate English proficiency through evaluation and the ability to finance all educational and living expenses. Refer to the freshman admission guidelines, transfer admission guidelines and admission procedures for specific program requirements in the “Admission to the University” chapter of this bulletin.

VCU is unable to provide financial support for international undergraduate students. Therefore, applicants who need a student visa must present documented evidence of available financial support to cover living and educational expenses while studying at VCU.

English language proficiency requirements

To ensure maximum benefits from academic study at VCU, all non-native English-speaking applicants, regardless of immigration status, must provide evidence of English language proficiency before admission and/or before enrollment in the university. English language proficiency is evaluated on factors such as amount and type of formal American education, TOEFL scores and Scholastic Aptitude Test (SAT) scores.

In general, VCU requires a minimum score of 550 on TOEFL for admission for undergraduate students. The university reserves the right to require additional testing and study in the VCU English Language Program prior to full-time enrollment in university courses.

Nonimmigrants (students with temporary U.S. visas)

Because of time constraints involved in processing international applications and obtaining visas, prospective international undergraduate applicants should submit the application for admission at least four months before they plan to enroll. In order for immigration documents to be issued, all required admission and financial credentials must be submitted no later than eight weeks before registration for classes. Applicants who are unable to meet the document submission deadline should plan to defer the intended semester of entry.

Bureau of Citizenship and Immigration Services regulations usually do not allow nonimmigrant students to study at VCU as special, nondegree-seeking students. The university registers international students only if they present a current and valid visa that permits enrollment in a university.

Proof of current visa type must be submitted to the International Admissions Office before enrollment, unless the applicant is requesting an F-1 or J-1 visa. Students possessing these visas admitted to VCU must submit copies of all immigration documents to the international student adviser before enrolling in classes.

Immigrants (permanent residents, resident aliens and asylum applicants)

Since immigrant applicants usually are in the United States at the time an application is submitted, these students must meet the same application deadlines as American citizens. Immigrants should submit their applications to the Office of Undergraduate admissions. If educated in the United States, immigrant applicants are considered under the same academic policies applicable to U.S. citizens. If educated outside this country, the same academic records are required as those for nonimmigrant applicants.

VCU requires detailed information about U.S. immigration status. Proof of permanent residency must be submitted with the admission application.

International Student and Scholar Services

Robert A. Wood

B.S. 2001 Virginia Polytechnic and State University

Pamela O. Haney

B.A. 1975 University of North Carolina at Chapel Hill

International students face many challenges when entering a new country. OIE's International Student and Scholar Services offers assistance and guidance to students as they adjust to a different culture and pursue their educational goals. Student services coordinators help with pre- and post-arrival

concerns, such as airport pick-ups, housing, banking, health insurance and other orientation activities.

Student services support continues throughout an international student's tenure at VCU. The Student services staff assists, advises and refers students with multifaceted, non-academic issues, including personal, legal, health and cultural. Academic and immigration matters are referred to appropriate advisers. The coordinators also confer with VCU faculty, staff and university officials regarding student concerns.

A student's American experience extends beyond the classroom. Student services offer educational, cultural and social activities that promote international understanding and community. The weekly International Student Coffee Hour is a casual gathering where students make and meet friends, practice spoken English and learn about upcoming VCU activities. Students are

encouraged to participate in other monthly OIE-sponsored activities, such as camping, skiing, visiting historical sites and tours of Washington, D.C. or New York City.

OIE also recognizes the importance of a support network, particularly when students are far from family and friends. In addition to the International Student Coffee Hour and monthly activities, Student Services also provides opportunities for students to develop relationships with those in the VCU and Richmond community. American volunteers extend the hand of friendship as conversation partners, friendship partners and hosts for holiday visits.

For information or assistance, please contact International Student and Scholar Services, Office of International Education, 916 W. Franklin St., at (804) 828-0808, by fax at (804) 828-2552, or by e-mail at rawood@vcu.edu or pohaney@vcu.edu.

University Honors Program

701 W. Grace St. • P.O. Box 843010
Richmond VA 23284-3010
(804) 828-1803 • Fax (804) 827-1669
<http://www.vcu.edu/honors>

Timothy L. Hulsey

Director (2004)
B.A. 1984 Texas A&M University
M.A. 1986 Trinity University
Ph.D. 1991 University of Tennessee

The University Honors Program at Virginia Commonwealth University was established to meet the needs of academically talented undergraduate students through a challenging and exciting program with high academic standards. The University Honors Program offers students an opportunity to exchange ideas, ask questions and explore values with bright fellow students and teachers who have been selected carefully for their scholarship and teaching excellence. The University Honors Program offers the opportunity for students to expand their creative and intellectual horizons, and to benefit from small classes in which there is greater interaction between students and faculty and among students themselves. For a detailed description of qualifications for admission see the "Admission to the University" chapter of this bulletin.

Graduation with University Honors

Academic advisers at VCU help students in the University Honors Program select classes that will fulfill the requirements for graduation and match students' interests. In addition, these students are eligible to take courses designated as "honors." Some honors courses are special sections of regular courses open only to University Honors Program students, in which class size is limited to maximize opportunities for interaction directly with the instructor and fellow students. Other honors courses are specialized courses for the University Honors Program. Of particular interest among these are modules. These modules are single-focus

topics courses, which occupy only one-third of a semester. Modules are often interdisciplinary and strive to connect rather than isolate studies. Each module counts for 1.5 credit hours. All honors courses are noted on the student's official transcript.

To graduate with the distinction of University Honors, students should complete 18 hours in courses designated as "honors." Of these courses, students are required to take at least six modules. In addition to completing at least six module courses and maintaining a GPA of 3.50 or higher, the student must present a dossier documenting how the student has become a well-educated individual. The dossier will be presented to the director and the University Honors Council in the penultimate semester of the student's academic work. Specific deadline dates are available on the Honors Program Web site.

In the dossier, students refer to the following guidelines explaining how they have been fulfilled or explaining why an alternative was more appropriate in the student's particular situation.

Guidelines and regulations

1. Students in the University Honors Program must have at least a 3.50 cumulative GPA and a 3.20 GPA in honors courses.
2. Honors students should achieve a standard of excellence in general education as well as in the student's major field.
3. Honors students should show well-roundedness by enrolling in at least two upper-level courses outside their field of specialization.
4. The honors student should complete at least 18 credit hours in courses designated as honors courses. Among these, the honors student must include at least nine credit hours in module courses. Modules are short courses which carry 1.5 credits each. The purpose of the module is to offer the honors student

the opportunity to focus on special topics in a challenging academic format. The honors student must complete at least six modules, and the nine credits thus earned may be counted as part of the 18 credits in honors courses.

It is important to note that the ideas expressed previously are to be considered as guidelines to the development of a dossier. The GPA minimums and the six modules are nonnegotiable. The central objective of the University Honors Program is that the students demonstrate good scholarship and sound learning in the best of the university's tradition.

Special opportunities

The University Honors Program sponsors a variety of intellectual, cultural and social activities as important supplements to classroom study. Among these are:

The Honors Idea Exchange—an approved student campus organization composed of University Honors Program students. The Idea Exchange decides each year on its projects and activities. In the past these have included picnics and potluck suppers on the social side and tutoring children and adults, and environmental clean-ups on the projects side. The main activity, however, is what the name implies: exchanging ideas.

Weekly Honors Seminars—informal discussions on topics pertinent to the wide-ranging interests of honors students. Discussions are led by outstanding guest speakers from the university faculty and administration, and from many different fields in the community.

Outstanding Lecturer Series—world-renowned scholars are brought to VCU to lecture on topics of interest and concern to University Honors Program students. Students have the opportunity to meet informally with the speakers.

The University Honors Program is committed to enriching the students'

academic and personal endeavors. Since people in the University Honors Program are serious students, special privileges beyond the vast resources available to all VCU students are provided. Some of these privileges include:

- registration priority,
- special library privileges and
- availability of special housing.

The present center of activities for the University Honors Program is located at 701 W. Grace St., a living/learning, residential Honors community. In this area, students have meeting rooms, quiet study rooms, a copy machine, computers and recreational areas. The Honors Center is open day and night for study.

Courses in honors (HONR)

HONR 190 Freshman Seminar

Semester course; 1 lecture hour. 1 credit. Restricted to freshman in the University Honors Program. This course develops a learning paradigm for students appropriate to university education. Students are expected to gain a willingness to take intellectual risks in meeting academic challenges, to engage in their own learning actively and to take greater responsibility for their own education. A thorough orientation to the library and other university resources is included. The students will hone analytical skills while examining selected topics from a perspective that emphasizes critical interpretation rather than mastery of information. The students will engage in collaborative projects on specified topics. Attendance at certain University Honors Program events is required.

HONR 198 Freshman Honors

Semester course; 3 lecture hours. Variable credit; maximum total eight credits. May be repeated once under different topic. Prerequisite: Permission of the director of the University Honors Program. An interdisciplinary course that will provide an intensive study of selected topics.

HONR 298 Sophomore Honors

Semester course; 3 lecture hours. Variable credit; maximum total eight credits. May be repeated once under different topic. Prerequisite: Permission of the director of the University Honors Program. Appropriate prerequisite or corequisites may be demanded. An

interdisciplinary course that will provide an intensive study of selected topics.

HONR 398 Honors Topics

Semester course; 3 lecture hours. Variable credit; may be repeated with different topics. Prerequisite: Permission of the director of the University Honors Program. Appropriate prerequisite or corequisites may be demanded. An in-depth study of selected topics. May be cross listed with departmental courses. See the Schedule of Classes for specific topics to be offered each semester.

HONR 399 Honors Module

One-third semester course; 3 lecture hours. 1.5 semester hours of credit per module. Prerequisite: Permission of the director of the University Honors Program or the chair of the offering department. Intensive studies of topics from a wide spectrum of disciplines are undertaken. Each module is a self-contained unit. Nine semester hours of credit must be taken in honors modules to complete the honors core curriculum. See the Schedule of Classes for topics.

HONR 492 Honors Independent Study

Semester course; maximum of four credits per semester, maximum total over all semesters of nine credits. Variable credit. Prerequisites: Junior or senior standing, and approval of the director of the University Honors Program and instructor/tutor. Intensive study under supervision of a faculty member in an area not covered in depth or contained in the regular curriculum.

Appendix A

Board of Visitors, University Administration and Academic Deans

Board of Visitors

Appointed by the Governor of Virginia

The Honorable Ralph L. Axselle Jr.
Richmond, Virginia

David G. Baldacci
Fairfax, Virginia

Edward H. Bersoff
McLean, Virginia

John C. Doswell II
Richmond, Virginia

W. Baxter Perkinson Jr., Rector
Richmond, Virginia

The Honorable Anne P. Petera, Vice Rector
Richmond, Virginia

Harold Y. Pyon
Fairfax Station, Virginia

The Honorable Anne J.G. Rhodes
Richmond, Virginia

E. Janet Riddick
Highland Springs, Virginia

Robert E. Rigby, Secretary
Richmond, Virginia

Richard T. Robertson
Burbank, California

Michele A. Romano
Fairfax Station, Virginia

Thomas G. Rosenthal
Richmond, Virginia

Carol S. Shapiro
Woodbridge, Virginia

The Honorable G. Bryan Slater
Richmond, Virginia

Philip Thompson Sr.
Chesterfield, Virginia

University administration

Eugene P. Trani, B.A., M.A., Ph.D.
President

Teresa A. Atkinson, M.S.
Associate Vice Provost for Finance

Donna R. Brodd, B.S., M.S., M.P.H., Ph.D.
Vice Provost for Academic Affairs

Donald C. J. Gehring, B.A., J.D.
Vice President for Government and Community
Relations for VCU and the VCU Health System

Thomas F. Huff, B.S., Ph.D.
Vice Provost for Life Sciences

Roderick J. McDavis Jr., B.S., M.S., Ph.D.
Provost and Vice President for Academic Affairs

Sue Ann Messmer, B.A., M.A.
Chief of Staff, Office of the President, and
Vice President for External Relations

Sheldon Retchin, M.D., M.S.P.H.
Vice President for Health Sciences and
CEO, VCU Health System

Henry G. Rhone, B.A., M.Ed., Ed.D.
Vice Provost for Student Affairs and Enrollment
Services

Phyllis C. Self, B.S., M.S., Ph.D.
Vice Provost for Academic Technology

Paul W. Timmreck, A.B.Ed., M.P.A.
Senior Vice President for Finance and
Administration

Marsha R. Torr, Ph.D.
Vice President for Research

Peter L. Wyeth, B.A., M.Ed.
Vice President for Advancement

Academic deans

College of Humanities and Sciences

Stephen D. Gottfredson
Dean (1997)
B.A. 1971 University of Oregon
M.A. 1977 Johns Hopkins University
Ph.D. 1977 Johns Hopkins University

Albert T. Sneden
Senior Associate Dean and Professor of Chemistry
(1977)
B.S. 1968 Carnegie Mellon University
Ph.D. 1975 Brandeis University

Jon Steingass
Associate Dean for Undergraduate Student Affairs
(2000)
B.S. 1984 University of Toledo
M.A. 1986 Bowling Green State University
Ph.D. 1997 University of Toledo

Laura J. Moriarty
Associate Dean for Academic Affairs and Associate
Professor of Criminal Justice (1993)
B.C.J. 1984 Louisiana State University
M.S. 1985 Louisiana State University
Ph.D. 1988 Sam Houston State University

School of Allied Health Professions

Cecil B. Drain
Professor and Dean (1993)
B.S.N. 1976 University of Arizona
M.S. 1980 University of Arizona
Ph.D. 1986 Texas A & M University

Dolores G. Clement
Associate Professor and Associate Dean (1988)
B.A. 1970 Mount Saint Joseph
M.A. 1979 Ohio State University
M.S. 1981 Rush University
Dr.P.H. 1988 University of California, Berkeley

Debra A. Ropelewski
Assistant Dean (1983)
B.S. 1982 Virginia Polytechnic Institute and State
University
M.B.A. 1988 Virginia Commonwealth University

School of the Arts

Richard E. Toscan

Dean and Professor of Theatre (1996)
 B.A. 1963 Purdue University
 M.A. 1964 University of Illinois, Urbana-Champaign
 Ph.D. 1970 University of Illinois, Urbana-Champaign

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Dean for VCU Qatar (1995)
 B.S. 1974 University of Missouri – Columbia
 M.S. 1980 University of Missouri – Columbia

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Senior Associate Dean for Academic Affairs and Director of Graduate Studies (1974)
 B.S. University of Wisconsin, Madison
 M.F.A. 1973 Maryland Institute College of Art, Rinehart School of Sculpture

John Demao

Associate Dean for VCU Qatar (1982)
 B.E.D. 1974 North Carolina State University
 M.P.D. 1976 North Carolina State University

Nancy M. Scott

Associate Dean for Academic Administration (1992)
 B.F.A. Virginia Commonwealth University
 M.Ed. 1996 Virginia Commonwealth University

Susan Roth

Associate Dean for Academic Affairs (2002)
 B.F.A. Cooper Union for the Advancement of Science and Art
 M.A. Ohio State University

Chris Burnside

Assistant Dean for Student Affairs (1985)
 B.F.A. 1969 Virginia Commonwealth University
 M.Ed. 1973 Florida State University

Camden Whitehead

Assistant Dean for Admissions and Director of Art Foundation (1986)
 B.A. 1976 Averett College
 M.Arch. 1980 Virginia Polytechnic Institute and State University

School of Business

Michael Sesnowitz

Dean and Professor of Economics (2000)
 B.A. Brooklyn College of The City University of New York
 M.A. Brooklyn College of The City University of New York
 Ph.D. 1971 University of Pittsburgh

E. G. Miller

Senior Associate Dean and Associate Professor of Insurance and Management Science (1973)
 B.S. University of Alabama
 M.A. University of Alabama
 Ph.D. 1976 University of Alabama
 CLU, CPCU

Walter S. Griggs Jr.

Associate Dean for Undergraduate Studies and Associate Professor of Business Law (1971)
 M.H. University of Richmond
 J.D. University of Richmond
 Ed.D. 1979 College of William & Mary

Charles J. Gallagher

Associate Dean for External Affairs and Associate Professor of Economics (1971)
 B.S. Rider College
 Ph.D. 1971 West Virginia University

Allen S. Lee

Associate Dean for Research and Graduate Studies and Professor of Information Systems (1998)
 B.S. Cornell University
 M.S. University of California, Berkeley
 Ph.D. 1982 Massachusetts Institute of Technology

School of Dentistry

Ronald J. Hunt

Harry Lyons Professor and Dean (1998)
 D.D.S. 1973 University of Iowa
 M.S. 1982 University of Iowa

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Senior Associate Dean (1980)
 B.S. 1974 Virginia Polytechnic Institute and State University
 D.D.S. 1978 Virginia Commonwealth University
 M.B.A. 1984 Virginia Commonwealth University

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Assistant Dean for Students
 B.S. 1976 South Carolina State University
 M.A. 1977 South Carolina State University
 Ph.D. 1987 Southern Illinois University

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Paul Tucker Goad Professor of Periodontics and Microbiology and Immunology and Assistant Dean for Research (1978)
 B.A. 1970 State University of New York
 D.D.S. 1974 State University of New York
 Ph.D. 1978 State University of New York

School of Education

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Dean and Distinguished Professor of Public Policy and Education (1998)
 B.A. University of Richmond
 M.Ed. Virginia Commonwealth University
 Ed.D. University of Virginia

Michael D. Davis

Senior Associate Dean for Academic Affairs (1979)
 B.S. Buffalo State College
 M.Ed. University of Buffalo
 Ph.D. University of Illinois

Diane J. Simon

Associate Dean for Student Affairs (1988)
 B.S. Hampton University
 M.S. New York University
 Ph.D. New York University

Beverly J. Warren

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 B.S. University of North Carolina at Greensboro
 M.S. Southern Illinois University
 Ed.D. University of Alabama
 Ph.D. Auburn University

School of Engineering

Robert J. Mattauch

Dean and Commonwealth Professor of Electrical Engineering
 B.S. 1962 Carnegie Institute of Technology
 M.E. 1963 North Carolina State University
 Ph.D. 1967 North Carolina State University

Barton B. Cregger

Associate Dean and Assistant Professor of Engineering
 B.S. 1980 University of Virginia
 M.S. 1982 University of Virginia

L. Thomas Overby

Assistant Dean for Graduate Affairs and Professor of Engineering
 B.S. 1961 Virginia Polytechnic Institute and State University
 M.Eng. 1966 Pennsylvania State University
 Ph.D. 1974 Virginia Polytechnic Institute and State University

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Assistant Dean for Research, Professor of Biomedical Engineering and Department Chair (1996)
 B.S. 1971 Pennsylvania State University
 M.S. 1975 Pennsylvania State University
 Ph.D. 1978 Pennsylvania State University

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Assistant Dean for Administration and Finance and Assistant Professor of Engineering
 B.A. 1974 University of Richmond
 M.S. 1991 Virginia Commonwealth University

Graduate School

F. Douglas Boudinot

Dean, Graduate School, Professor of Pharmaceutics
B.S. 1978 Springfield College
Ph.D. 1985 State University of New York in Buffalo

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Associate Dean, Graduate School and Assistant Professor, Department of Educational Leadership, School of Education
B.A. 1970 Longwood College
M.B.A. 1986 Virginia Commonwealth University
Ph.D. 1996 Virginia Commonwealth University

School of Medicine

Heber H. Newsome

Dean and Professor of Surgery (1970)
B.S. 1958 Wake Forest University
M.S. 1962 Tulane University
M.D. 1962 Tulane University

Craig E. Cheifetz

Assistant Dean for Medical Education and Assistant Professor (2002)
VCU School of Medicine – Inova Campus
B.A. 1991 American University
M.D. 1995 State University of New York – Buffalo

Jan F. Chlebowski

Associate Dean for Graduate Education and Professor of Biochemistry (1979)
B.A. 1965 St. Mary's College
Ph.D. 1969 Case Western Reserve University

Ralph R. Clark III

Associate Dean for Clinical Activities and Assistant Professor of Internal Medicine (1990)
B.S. 1983 The College of William and Mary
M.D. 1987 Virginia Commonwealth University

George D. Ford

Assistant Dean for Sponsored Programs and Professor of Physiology (1969)
B.S. 1961 West Virginia University
Ph.D. 1967 West Virginia University

William M. Gleason

Associate Vice-President for Health Sciences/ Financial Affairs and Senior Associate Dean for Finance and Administration and Assistant Professor (1980)
A.B. 1969 University of North Carolina, Chapel Hill
M.B.A. 1973 Indiana University

Carol L. Hampton

Associate Dean for Faculty and Instructional Development and Associate Professor (1987)
B.A. 1965 University of Arkansas
M.M.S. 1969 Tulane University

Cynthia M. Heldberg

Associate Dean for Admissions and Assistant Professor (1986)
B.A. 1965 Brown University
M.A. 1983 West Virginia College
Ph.D. 1997 Virginia Commonwealth University

Sheldon Markowitz

Associate Dean for Veterans Services (1975)
M.S. 1978 Virginia Commonwealth University
M.D. 1968 Medical College of Virginia

Paul E. Mazmanian

Associate Dean for Continuing Medical Education and Professor of Preventive Medicine and Community Health (1978)
B.S. 1972 Wayne State University
M.A. 1975 Michigan State University
Ph.D. 1979 University of Michigan

James M. Messmer

Associate Dean for Medical Education and Associate Professor of Radiology (1981)
B.A. 1968 Rockhurst College
M.D. 1972 St. Louis University
M.A. 1995 Virginia Commonwealth University

Russell P. Seneca

Associate Dean for Medical Education and Professor (2002)
VCU School of Medicine – Inova Campus
A.B. 1963 Providence College
M.D. 1967 Georgetown University

Isaac K. Wood

Associate Dean for Student Activities and Associate Professor of Psychiatry (1989)
B.S. 1978 Lynchburg College
M.D. 1982 Virginia Commonwealth University

School of Nursing

Nancy F. Langston

Dean (1991)
B.S.N. 1966 University of Arkansas
M.N. 1972 Emory University
Ph.D. 1977 Georgia State University

Inez Tuck

Associate Professor and Associate Dean of Doctoral Programs (1997)
B.S.N. 1970 A&T State University, N.C.
M.N. 1972 University of Florida, Gainesville
Ph.D. 1980 University of North Carolina, Greensboro
M.B.A. 1995 University of Tennessee, Knoxville

Janet B. Younger

Professor and Associate Dean for Master's and Undergraduate Programs (1984)
B.S. 1967 Medical College of Virginia
M.Ed. 1970 University of Virginia
M.S. 1972 Virginia Commonwealth University
Ph.D. 1984 University of Virginia

Anthony J. DeLellis

Assistant Dean for Administration (1985)
B.A. 1970 University of Delaware
M.A. 1973 Central Michigan University
Ed.D. 1977 University of Virginia

School of Pharmacy

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Professor and Dean (1996)
B.S. 1962 University of Iowa
M.S. 1966 University of Iowa
Ph.D. 1968 Purdue University

Thomas P. Reinders

Associate Professor and Associate Dean for Admissions and Student Services (1974)
B.S. 1970 University of Cincinnati
Pharm.D. 1972 University of Cincinnati

William E. Smith

Associate Professor and Executive Associate Dean (1997)
Pharm.D. 1965 University of California
M.P.H. 1976 University of California
Ph.D. 1994 Auburn University

Andrew L. Wilson

Associate Professor and Associate Dean for Institutional Program Development (1998)
B.S. 1976 University of Connecticut
Pharm.D. 1978 Wayne State University

School of Social Work

Frank R. Baskind

Dean and Professor of Social Work (1992)
A.B. 1967 Fordham University
M.S.W. 1971 University of Connecticut
Ph.D. 1978 University of Connecticut

Ann M. Nichols-Casebolt

Associate Dean and Professor of Social Work (1993)
B.A. 1971 University of Wisconsin
M.S.S.W. 1978 University of Wisconsin
Ph.D. 1984 University of Wisconsin

Appendix B

Credit for Advanced Placement

AP tests passed with scores of 3, 4 or 5 will result in the award of three to eight semester credits per AP test. The chart below provides information about the VCU equivalent credit for the various AP tests.

To ensure consistency, the College of Humanities and Sciences' Dean's Office is the

official credit notification point for AP credit for all university programs. Final determination of credit will be made after test results have been received and evaluated by the dean's office. Credits awarded are counted as credits earned toward the degree, but are not used in the computation of the student's VCU grade-point average.

Courses in music and theater will be evaluated by the School of the Arts before award of credit, if any. For more information, contact the College of Humanities and Sciences' Dean's Office at (804) 828-1673.

Credit for Advanced Placement (AP) Tests of the College Entrance Examination Board

AP Examination	AP Score	VCU Equivalent	VCU Credit
Art: Studio Art – Drawing	4,5	ARTF 162	1
Art: Studio Art-2-D-Design	4,5	ARTF 163	1
Art: Studio Art-3-D-Design	4,5	ARTF 173	1
Biology	3	BIOL 101, BIOZ 101L	4
Biology	4	BIOL 152, BIOZ 152L	4
Biology	5	BIOL 151, BIOZ 151L, BIOL 152, BIOZ 152L	8
Calculus AB	3,4,5	MATH 200	4
Calculus BC	3,4	MATH 200	4
Calculus BC	5	MATH 200, 201	8
Chemistry	3,4	CHEM 101, CHEZ 101L	4
Chemistry	5	CHEM 101, CHEZ 101L, CHEM 102, CHEZ 102L	8
Computer Science A	4,5	CMSC 245	3
Computer Science AB	3	CMSC 245	3
Computer Science AB	4,5	CMSC 245, 246	6
Economics – Macro	4,5	ECON 211	3
Economics – Micro	4,5	ECON 210	3
English Language and Composition	3,4,5	ENGL 101	3
English Literature/Comparative	3,4,5	ENGL 101	3
Environmental Science	3,4	BIOL 103	4
Environmental Science	5	BIOL 103, BIOZ 103L	5
European History	3,4,5	HIST 101, 102	6
French, German, Spanish Language	3	FREN, GRMN, SPAN 202	3
French, German, Spanish Language	4	FREN, GRMN, SPAN 300	3
French, German, Spanish Language	5	FREN, GRMN, SPAN 300, 301	6
French, German, Spanish Literature	3	FREN, GRMN, SPAN 202	3
French, German, Spanish Literature	4	FREN, GRMN, SPAN 330	3
French, German, Spanish Literature	5	FREN, GRMN, SPAN 330, 331	6
Govt. & Politics: Comparative	3,4,5	Political Science Elective (POLI 202)	3
Govt. & Politics: United States	3,4,5	POLI 103	3
History of Art	3	ARTH 103	3
History of Art	4,5	ARTH 103, 104	6
Human Geography	3,4,5	GEOG 102	3
Latin: Catullus/Horace	3,4,5	LATN 201	3
Latin: Vergil	3,4,5	LATN 202	3
Music Theory	3,4,5	MHIS 110	3
Physics B	3,4	PHYS 201, (PHYZ 201L)	4
Physics B	5	PHYS 201, (PHYZ 201L), PHYS 202, (PHYZ 202L)	8
Physics C – Electricity & Magnetism	4,5	PHYS 208, (PHYZ 208L)	5
Physics C- Mechanics	3,4,5	PHYS 207, (PHYZ 207L)	5
Psychology	3,4,5	PSYC 101	4
Statistics	3,4,5	STAT 210	3
U.S. History	3,4,5	HIST 103, 104	6
World History	3,4,5	History Elective (HIST 111, HIST 112)	6

Dual Enrollment Courses. Qualified students who have taken college-level work while still enrolled in a secondary school may receive academic credit. Courses taken as dual enrollment courses will be treated as VCU courses or transfer credits according to the evaluation guidelines in the "Admission to the University" chapter of this bulletin.

Appendix C

Credit for International Baccalaureate

IB Higher Level (HL) tests passed with scores of 3-7 and Standard Level (SL) tests passed with scores of 4-7 will, depending on the test, be considered for advanced standing and credit for the corresponding courses at Virginia Commonwealth University. The chart below provides information about the VCU equivalent credit for IB scores. Successful completion of the IB Diploma will entitle the student to automatic

admission to the University Honors Program. Three elective credits will be awarded for the "Theory of Knowledge" course.

To ensure consistency, the College of Humanities and Sciences' Dean's Office is the official credit notification point for IB credit for all university programs. Final determination of credit will be made after test results have been received and evaluated by the dean's office. Credits

awarded are counted as credits earned toward the degree, but are not used in the computation of the student's VCU grade-point average.

Courses in music and theater will be evaluated by the School of the Arts before award of credit, if any. For more information, contact the College of Humanities and Sciences' Dean's Office at (804) 828-1673.

Credit for International Baccalaureate (IB) Diplomas and Courses

IB Examination	HL	SL	VCU Equivalent	VCU Credit
Biology	4,5	5,6	BIOL 101, BIOZ 101L	4
Biology	6	7	BIOL 152, BIOZ 152L	4
Biology	7		BIOL 151, BIOZ 151L, BIOL 152, BIOZ 152L	8
Business & Management			Course equivalency to be determined by School of Business	
Chemistry	5	6	CHEM 101, CHEZ 101L	4
Chemistry	6,7	7	CHEM 101, CHEZ 101L, CHEM 102, CHEZ 102L	8
Computer Science	4,5	5,6	CMSC 245	3
Computer Science	6,7	7	CMSC 245, 246	6
Economics	6,7	7	ECON 203	3
English A	4,5,6,7	5,6,7	ENGL 101	3
English B	4,5,6,7	5,6,7	ENGL 101	3
Environmental Systems		5,6,7	GEOG 203, GEOZ 203L	4
French, German, Spanish		4	FREN, GRMN, SPAN 102	4
French, German, Spanish	4	5	FREN, GRMN, SPAN 202	3
French, German, Spanish	5	6	FREN, GRMN, SPAN 300	3
French, German, Spanish	6,7	7	FREN, GRMN, SPAN 300, 301	6
Further Mathematics		4,5,6	Possible credit for college math course based on VCU placement test	
Further Mathematics		7	MATH 141	3
Geography	4,5,6,7	5,6,7	GEOG 102	3
Higher Mathematics	4		Possible credit for college math course based on VCU placement test	
Higher Mathematics	5,6		MATH 200	4
Higher Mathematics	7		MATH 200, 201	8
History Americas	4,5,6,7	5,6,7	HIST 103, 104	6
History Asia & Oceania			Course equivalency to be determined by Department of History	
History Europe	4,5,6,7	5,6,7	HIST 101, 102	6
ITGS			none	0
Latin	3	4	LATN 101	4
Latin	4	5	LATN 102	4
Latin	5,6,7	6,7	LATN 202	3
Mathematical Methods		5,6,7	MATH 151	4
Mathematical Studies		4,5,6,7	Possible credit for college math course based on VCU placement test	
Music	4,5,6,7	5,6,7	Course equivalency to be determined by music theory faculty evaluation	
Philosophy	5,6,7	6,7	PHIL 101	3
Physics	4,5	5,6	PHYS 201, (PHYZ 201L)	4
Physics	6,7	7	PHYS 201, (PHYZ 201L), PHYS 202, (PHYZ 202L)	8
Psychology	4,5,6,7	5,6,7	PSYC 101	4
Social & Cultural Anthropology	4,5,6,7	5,6,7	ANTH 103	3
Theatre Arts			Course Equivalency to be determined by School of the Arts	
Visual Arts	4,5,6,7	5,6,7	ARTF 162 (art majors); ARTF 121 (other majors)	1; 2

Appendix D

Determination of Student Classification for In-state Tuition Purposes

Section 23-7.4, of the Code of Virginia, governs eligibility for in-state tuition. Effective for students enrolling on or after July 1, 1996, the statute provides:

§ 23-7.4. Eligibility for in-state tuition charges. – A. For purposes of this section and §§ 23-7.4:1, 23-7.4:2 and 23-7.4:3, the following definitions shall apply:

“Date of the alleged entitlement” means the first official day of class within the term, semester or quarter of the student’s program.

“Dependent student” means one who is listed as a dependent on the federal or state income tax return of his parents or legal guardian or who receives substantial financial support from his spouse, parents or legal guardian. It shall be presumed that a student under the age of twenty-four on the date of the alleged entitlement receives substantial financial support from his parents or legal guardian, and therefore is dependent on his parents or legal guardian, unless the student (i) is a veteran or an active duty member of the U.S. Armed Forces; (ii) is a graduate or professional student; (iii) is married; (iv) is a ward of the court or was a ward of the court until age 18; (v) has no adoptive or legal guardian when both parents are deceased; (vi) has legal dependents other than a spouse; or (vii) is able to present clear and convincing evidence that he is financially self-sufficient.

“Domicile” means the present, fixed home of an individual to which he returns following temporary absences and at which he intends to stay indefinitely. No individual may have more than one domicile at a time. Domicile, once established, shall not be affected by mere transient or temporary physical presence in another jurisdiction.

“Domiciliary intent” means present intent to remain indefinitely.

“Emancipated minor” means a student under the age of eighteen on the date of the alleged entitlement whose parents or guardians have surrendered the right to his care, custody and earnings and who no longer claim him as a dependent for tax purposes.

“Full-time employment” means employment resulting in, at least, an annual earned income reported for tax purposes equivalent to

fifty work weeks of forty hours at minimum wage.

“Independent student” means one whose parents have surrendered the right to his care, custody and earnings, do not claim him as a dependent on federal or state income tax returns, and have ceased to provide him substantial financial support.

“Special arrangement contract” means a contract between a Virginia employer or the authorities controlling a federal installation or agency located in Virginia and a public institution of higher education for reduced rate tuition charges as described § 23-7.4:2 G.

“Substantial financial support” means financial support in an amount which equals or exceeds that required to qualify the individual to be listed as a dependent on federal and state income tax returns.

“Unemancipated minor” means a student under the age of eighteen on the date of the alleged entitlement who is under the legal control of and is financially supported by either of his parents, legal guardian or other person having legal custody.

“Virginia employer” means any employing unit organized under the laws of Virginia or having income from Virginia sources regardless of its organizational structure, or any public or nonprofit organization authorized to operate in Virginia.

B. To become eligible for in-state tuition, an independent student shall establish by clear and convincing evidence that for a period of at least one year immediately prior to the date of the alleged entitlement, he was domiciled in Virginia and had abandoned any previous domicile, if such existed.

To become eligible for in-state tuition, a dependent student or unemancipated minor shall establish by clear and convincing evidence that for a period of at least one year prior to the date of the alleged entitlement, the person through whom he claims eligibility was domiciled in Virginia and had abandoned any previous domicile, if such existed. If the person through whom the dependent student or unemancipated minor established such domicile and eligibility for in-state tuition abandons his Virginia domicile, the dependent student

or unemancipated minor shall be entitled to such in-state tuition for one year from the date of such abandonment.

In determining domiciliary intent, all of the following applicable factors shall be considered: continuous residence for at least one year prior to the date of alleged entitlement, state to which income taxes are filed or paid, driver’s license, motor vehicle registration, voter registration, employment, property ownership, sources of financial support, military records, a written offer and acceptance of employment following graduation, and any other social or economic relationships with the Commonwealth and other jurisdictions.

Domiciliary status shall not ordinarily be conferred by the performance of acts which are auxiliary to fulfilling educational objectives or are required or routinely performed by temporary residents of the Commonwealth. Mere physical presence or residence primarily for educational purposes shall not confer domiciliary status. A matriculating student who has entered an institution and is classified as an out-of-state student shall be required to rebut by clear and convincing evidence the presumption that he is in the Commonwealth for the purpose of attending school and not as a bona fide domiciliary.

Those factors presented in support of entitlement to in-state tuition shall have existed for the one-year period prior to the date of the alleged entitlement. However, in determining the domiciliary intent of active duty military personnel residing in the Commonwealth, or the domiciliary intent of their dependent spouse or children who claim domicile through them, who voluntarily elect to establish Virginia as their permanent residence for domiciliary purposes, the requirement of one year shall be waived if all other conditions for establishing domicile are satisfied.

C. A married person may establish domicile in the same manner as an unmarried person.

An emancipated minor may establish domicile in the same manner as any other independent student. A nonmilitary student whose parent or spouse is a member of the armed forces may establish domicile in the same manner as any other student.

Any alien holding an immigration visa or classified as a political refugee shall also establish eligibility for in-state tuition in the same manner as any other student. However, absent congressional intent to the contrary, any person holding a student or other temporary visa shall not have the capacity to intend to remain in Virginia indefinitely and, therefore, shall be ineligible for Virginia domicile and for in-state tuition charges.

The domicile of a dependent student shall be rebuttably presumed to be the domicile of the parent or legal guardian claiming him as an exemption on federal or state income tax returns currently and for the tax year prior to the date of the alleged entitlement or providing him substantial financial support.

For the purposes of this section, the domicile of an unemancipated minor or a dependent student eighteen years of age or older may be either the domicile of the parent with whom he resides, the parent who claims the student as a dependent for federal and Virginia income tax purposes for the tax year prior to the date of the alleged entitlement and is currently so claiming the student, or the parent who provides the student substantial financial support. If there is no surviving parent or the whereabouts of the parents are unknown, then the domicile of an unemancipated minor shall be the domicile of the legal guardian of such unemancipated minor unless there are circumstances indicating that such guardianship was created primarily for the purpose of conferring a Virginia domicile on the unemancipated minor.

D. It is incumbent on the student to apply for change in domiciliary status on becoming eligible for such change. Changes in domiciliary status shall only be granted prospectively from the date such application is received.

A student who knowingly provides erroneous information in an attempt to evade payment of out-of-state fees shall be charged out-of-state tuition fees for each term, semester or quarter attended and may be subject to dismissal from the institution. All disputes related to the veracity of information provided to establish Virginia domicile shall be appealable through the due process procedure required by § 23-7.4:3. (1984, c. 422; 1985, cc. 179, 572; 1988, c. 124; 1989, c. 371; 1990, c. 680; 1991, c. 590; 1996, cc. 931, 981; 1999, c. 439.)

The 1996 amendments. – The 1996 amendments by cc. 931 and 981 are identical, and rewrote this section.

§ 23-7.4:1. Waiver of tuition and required fees for certain students. – A. 1. All sums appropriated by law for the purpose of effecting

the provisions of this subsection shall be used for the sole purpose of providing for free tuition and required fees at the state-supported institutions and institutional charges, general or college fees, or any charges by whatever term referred to, board and room rent, and books and supplies at any education or training institution of collegiate or secondary grade in the Commonwealth of Virginia approved in writing by the Director of the Department of Veterans' Affairs for the use and benefit of the children not under sixteen and not over twenty-five years of age either of whose parents was killed in action, is missing in action or a prisoner of war in any armed conflict subsequent to December 6, 1941, while serving in the Army, Navy, Marine Corps, Air Force or Coast Guard of the United States, or was or is or may hereafter become totally and permanently disabled due to service during such periods if such parent (i) was a citizen of Virginia at the time of entering such service; (ii) is and has been, for at least five years immediately prior to the date on which application was submitted by or on behalf of such child for admission to any education or training institution of collegiate or secondary grade in this Commonwealth, a citizen of Virginia; (iii) is deceased, was a citizen of Virginia on the date of his or her death and had been a citizen of Virginia for at least five years immediately prior to his or her death; or (iv) is deceased and the surviving parent had been, at some time previous to marrying the deceased parent, a citizen of Virginia for at least five years and is and has been a citizen of Virginia for at least five years immediately prior to the date on which application was submitted by or on behalf of such child for admission to any education or training institution of collegiate or secondary grade in this Commonwealth.

2. Such children, upon recommendation of the Director of the Department of Veterans' Affairs, shall be admitted to state institutions of secondary or higher education, free of tuition and all required fees. Each state-supported institution shall include in its catalogue or equivalent publication a statement describing the benefits provided by this subsection.

3. The amounts that may be or may become due by reason of attendance at any such educational or training institution, not in excess of the amount specified in subdivision 5, shall be payable on vouchers approved by the Director of the Department of Veterans' Affairs.

4. The Director of the Department of Veterans' Affairs shall determine the eligibility of the children who may make application for the benefits provided for in this subsection and shall satisfy himself of the attendance and satisfactory progress of such children at such

institution and of the accuracy of the charge or charges submitted on account of the attendance of any such children at any such institution. However, neither the Director nor any employee of the Department of Veterans' Affairs shall receive any compensation for such services.

5. To carry out the provisions of this subsection, there may be expended such funds as shall be appropriated for the purpose in the general appropriation acts. However, the maximum amount to be expended for each such child shall not be more, when combined with any federal allowance which may be made for such tuition, charges, fees, rent, books and supplies, than the actual amount of the benefits provided for in this subsection.

6. For the purposes of this subsection, user fees, such as room and board charges, shall not be included in this authorization to waive tuition and fees. However, all required fees, educational and auxiliary, shall be waived along with tuition.

B. Any child between the ages of sixteen and twenty-five whose parent or any person whose spouse has been killed in the line of duty while employed or serving as a law-enforcement officer, firefighter, including a special forest warden designated pursuant to §10.1-1135, member of a rescue squad, sworn law-enforcement officer, special agent of the Department of Alcoholic Beverage Control, state correctional, regional or local jail officer, regional jail or jail farm superintendent, sheriff, deputy sheriff, or member of the Virginia National Guard while such member is serving in the Virginia National Guard or as a member of the United States Armed Forces, shall be entitled to free undergraduate tuition and required fees at any public institution of higher education in Virginia under the following conditions:

1. The chief administrative officer of the Alcoholic Beverage Control Board, emergency medical services agency, law-enforcement agency, or other appropriate agency or the Superintendent of State Police certifies that the deceased parent or spouse was employed or serving as a law-enforcement officer or a firefighter, including a special forest warden pursuant to §10.1-1135, or member of a rescue squad or in any other capacity as specified in this section and was killed in the line of duty while serving or living in the Commonwealth; and

2. The child or spouse shall have been offered admission to a public institution of higher education. Any child or spouse who believes he is eligible shall apply to the public institution of higher education to which he has been admitted for the benefits provided by this subsection. The institution shall determine the

eligibility of the applicant for these benefits and shall also ascertain that the recipients are in attendance and are making satisfactory progress. The amounts payable for tuition and required fees for the applicants shall be waived by the institution accepting the students.

For the purposes of this subsection, user fees, such as room and board charges, shall not be included in this authorization to waive tuition and fees. However, all required fees, educational and auxiliary, shall be waived along with tuition.

C. Senior citizens shall be entitled to free tuition and required fees pursuant to the provisions of Chapter 4.5 (§ 23-38.54 et seq.) of Title 23.

D. Tuition and required fees may be waived for a student from a foreign country enrolled in a public institution of higher education through a student exchange program approved by such institution, provided the number of foreign students does not exceed the number of students paying full tuition and required fees to the institution under the provisions of the exchange program for a given three-year period. (1996, cc. 931, 981; 1998, c. 377; 2001, c. 330.)

§ 23-7.4:2. Eligibility for in-state or reduced tuition for students not domiciled in Virginia; tuition grants for members of the National Guard of the Commonwealth of Virginia. – A. A nonmilitary student whose parent or spouse is a member of the armed forces may establish domicile in the same manner as any other student. However, a nonmilitary student, not otherwise eligible for in-state tuition, whose parent or spouse is a member of the military residing in the Commonwealth pursuant to military orders and claiming a state other than Virginia on their State of Legal Residence Certificate, shall be entitled to in-state tuition charges when the following conditions are met: (i) if the student is a child of a member of the armed forces, then the nonmilitary parent shall have, for at least one year immediately prior to the date of alleged entitlement for in-state tuition charges, resided in Virginia, been employed full time and paid individual income taxes to Virginia. Such student shall be eligible for in-state tuition charges only if the nonmilitary parent claims him as a dependent for Virginia and federal income tax purposes, as evidenced by claiming him as a dependent on an individual or joint return; or (ii) if the student is the spouse of a member of the armed forces, then such student shall have, for at least one year immediately prior to the date of alleged entitlement for in-state tuition, resided in Virginia, been employed full time and paid

individual income taxes to Virginia; or (iii) if the student is the child or the spouse of a member of the armed forces, then the student shall be entitled to in-state tuition charges for a maximum of one year during the period that the military parent or spouse is residing in the Commonwealth. Any student whose spouse or parent is a member of the armed forces shall be eligible for in-state tuition charges for so long as the conditions of clauses (i) and (ii) of this subsection continue to be met. Military dependents provided in-state tuition for one year during the period the military parent or spouse is residing in Virginia shall be counted as out-of-state students for admissions, enrollment and tuition and fee revenue policy purposes. **(Note: § 23-7.4:2 (A)(iii) of the code of Virginia which grants one year in-state tuition to the spouse and children of military personnel has been suspended since the 1994-1996 biennium by § 4-2.01(b)(4) of the appropriation act. Military members are not able to receive any benefit outlined in this section until the suspension period ends.)**

B. Students who live outside this Commonwealth and have been employed full time inside Virginia for at least one year immediately prior to the date of the alleged entitlement for in-state tuition shall be eligible for in-state tuition charges if such student has paid Virginia income taxes on all taxable income earned in this Commonwealth for the tax year prior to the date of the alleged entitlement. Students claimed as dependents for federal and Virginia income tax purposes who live outside this Commonwealth shall become eligible for in-state tuition charges if the nonresident parents claiming them as dependents have been employed full time inside Virginia for at least one year immediately prior to the date of the alleged entitlement and paid Virginia income taxes on all taxable income earned in this Commonwealth for the tax year prior to the date of the alleged entitlement. Such students shall continue to be eligible for in-state tuition charges for so long as they or their qualifying parent is employed full time in Virginia, paying Virginia income taxes on all taxable income earned in this Commonwealth and the student is claimed as a dependent for Virginia and federal income tax purposes.

C. Any person who (i) is a member of the National Guard of the Commonwealth of Virginia and has a minimum remaining obligation of two years, (ii) has satisfactorily completed required initial active duty service, (iii) is satisfactorily performing duty in accordance with regulations of the National Guard, and (iv) is enrolled in any state institution of higher education, any private, accredited and

nonprofit institution of higher education in the Commonwealth whose primary purpose is to provide collegiate or graduate education and not to provide religious training or theological education, any course or program offered by any such institution or any public career and technical school shall be eligible for a grant in the amount of the difference between the full cost of tuition and any other educational benefits for which he is eligible as a member of the National Guard. Application for a grant shall be made to the Department of Military Affairs. Grants shall be awarded from funds available for the purpose by such Department.

D. Notwithstanding the provisions of § 23-7.4 or any other provision of the law to the contrary, the governing board of any state institution of higher education or the governing board of the Virginia Community College System may charge the same tuition as is charged to any person domiciled in Virginia pursuant to the provisions of § 23-7.4 to:

1. Any person enrolled in one of the institution's programs designated by the State Council of Higher Education who is domiciled in and is entitled to reduced tuition charges in the institutions of higher learning in any state which is a party to the Southern Regional Education Compact which has similar reciprocal provisions for persons domiciled in Virginia;

2. Any student from a foreign country who is enrolled in a foreign exchange program approved by the state institution during the same period that an exchange student from the same state institution, who is entitled to in-state tuition pursuant to § 23-7.4, is attending the foreign institution; and

3. Any high school or magnet school student, not otherwise qualified for in-state tuition, who is enrolled in courses specifically designed as part of the high school or magnet school curriculum in a community college for which he may, upon successful completion, receive high school and community college credit pursuant to a dual enrollment agreement between the high school or magnet school and the community college.

E. The governing board of the Virginia Community College System may charge reduced tuition to any person enrolled in one of the System's institutions who lives within a thirty-mile radius of a Virginia institution, is domiciled in, and is entitled to in-state tuition charges in the institutions of higher learning in any state which is contiguous to Virginia and which has similar reciprocal provisions for persons domiciled in Virginia.

F. The advisory board of the University of Virginia's College at Wise and the board of visitors of the University of Virginia may charge reduced tuition to any person enrolled at the

University of Virginia's College at Wise who lives within a fifty-mile radius of the University of Virginia's College at Wise, is domiciled in, and is entitled to in-state tuition charges in the institutions of higher learning in Kentucky, if Kentucky has similar reciprocal provisions for persons domiciled in Virginia.

Any out-of-state students granted in-state tuition pursuant to this subsection and subsection E shall be counted as out-of-state students for the purposes of determining admissions, enrollment, and tuition and fee revenue policies.

G. Public institutions of higher education may enter into special arrangement contracts with Virginia employers or authorities controlling federal installations or agencies located in Virginia. The special arrangement contracts shall be for the purpose of providing reduced rate tuition charges for the employees of the Virginia employers or federal personnel when the employers or federal authorities are assuming the liability for paying, to the extent permitted by federal law, the tuition for the employees or personnel in question and the employees or personnel are classified by the requirements of this section as out-of-state.

Special arrangement contracts with Virginia employers or federal installations or agencies may be for group instruction in facilities provided by the employer or federal authority or in the institution's facilities or on a student-by-student basis for specific employment-related programs.

Special arrangement contracts shall be valid for a period not to exceed two years and shall be reviewed for legal sufficiency by the Office of the Attorney General prior to signing. All rates agreed to by the public institutions shall be at least equal to in-state tuition and shall only be granted by the institution with which the employer or the federal authorities have a valid contract for students for whom the employer or federal authorities are paying the tuition charges.

All special arrangement contracts with authorities controlling federal installations or agencies shall include a specific number of students to be served at reduced rates.

Nothing in this subsection shall change the domiciliary status of any student for the purposes of enrollment reporting or calculating the proportions of general funds and tuition and fees contributed to the cost of education. (1996, cc. 931, 981; 1998, cc. 62, 79; 1999, cc. 424, 437; 2000, c. 196; 2001, c. 483.)

§ 23-7.4.3. Determinations of eligibility; appeals and guidelines. – A. Each public institution of higher education shall establish an appeals process for those students who are

aggrieved by decisions regarding eligibility for in-state or reduced tuition charges pursuant to §§ 23-7.4 and 23-7.4:2. The Administrative Process Act (§ 2.2-4000 et seq.) shall not apply to these administrative reviews.

An initial determination shall be made. Each appeals process shall include an intermediate review of the initial determination and a final administrative review. The final administrative decision shall be in writing. A copy of this decision shall be sent to the student. Either the intermediate review or the final administrative review shall be conducted by an appeals committee consisting of an odd number of members. No person who serves at one level of this appeals process shall be eligible to serve at any other level of this review. All such due process procedures shall be in writing and shall include time limitations in order to provide for orderly and timely resolutions of all disputes.

Any party aggrieved by a final administrative decision shall have the right to review in the circuit court for the jurisdiction in which the relevant institution is located. A petition for review of the final administrative decision shall be filed within thirty days of receiving the written decision. In any such action, the institution shall forward the record to the court, whose function shall be only to determine whether the decision reached by the institution could reasonably be said, on the basis of the record, not to be arbitrary, capricious or otherwise contrary to law.

B. To ensure the application of uniform criteria in administering this section and determining eligibility for in-state tuition charges, the State Council of Higher Education shall issue and from time to time revise guidelines, including domiciliary status questions to be incorporated by all state institutions of higher education in their admissions applications. These guidelines shall not be subject to the Administrative Process Act.

An advisory committee, composed of at least ten representatives of institutions of higher education, shall be appointed by the Council each year to cooperate with the Council in developing the guidelines for determining eligibility or revisions thereof. The Council shall consult with the Office of the Attorney General and provide opportunity for public comment prior to issuing any such guidelines. (1996, cc. 931, 981.)

§ 23-7.4:4. Reduction in tuition and fees charged; in-state undergraduates. – It is the intent of the General Assembly that the Commonwealth of Virginia make available to its citizens an affordable college education. Therefore, notwithstanding any provision of

law to the contrary, the governing body of each institution of higher education shall reduce the tuition and mandatory educational and general fees in effect on June 30, 1999, for in-state undergraduate students by twenty percent for the year beginning July 1, 1999, and ending June 30, 2000. Following such reduction, the Governor shall include, in each budget submitted to the General Assembly pursuant to § 2.2-1509, sufficient funds to reimburse each public institution of higher education for such tuition and mandatory fees reduced pursuant to this section. (1999, c. 1042.)

§ 23-7.4:5. Grant for tuition and fees for certain individuals. – A. The payment of tuition or fees, except fees established for the purpose of paying for course materials, such as laboratory fees, shall be provided for a person who is a bona fide domiciliary of Virginia, as defined in § 23-7.4, and who:

1. Has received a high school diploma or a general educational development (GED) certificate and was in foster care or in the custody of the Department of Social Services or is considered a special needs adoption at the time such diploma or certificate was awarded;
2. Is enrolled or has been accepted for enrollment as a full-time student in a degree or certificate program of at least one academic year in length in a public two-year institution of higher education in the Commonwealth;
3. Has not been enrolled in postsecondary education as a full-time student for more than five years;
4. Maintains the required grade point average established by the State Board for Community Colleges;
5. Has submitted applications for federal student financial aid programs for which he may be eligible; and
6. Meets any additional financial need requirements established by the State Board for Community Colleges for the purposes of such grant.

B. The State Board for Community Colleges, in consultation with the State Council of Higher Education and the Department of Social Services, shall establish regulations governing such grants. The regulations shall include, but shall not be limited to, provisions addressing renewals of grants; financial need; the calculation of grant amounts, after consideration of any additional financial resources or aid the student may hold; the grade point average required to retain such grant; and procedures for the repayment of tuition and fees for failure to meet the requirements imposed by this section. (2000, c. 968.)

Appendix E

Program Accreditation

University accreditation

Virginia Commonwealth University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, master's, doctoral and first professional degrees. SACS is located at 1866 Southern Lane, Decatur, GA 30033; telephone: (404) 679-4500.

Academic program accreditation

College of Humanities and Sciences

Chemistry (bachelor's degree)

The American Chemical Society

Psychology (doctoral degrees: clinical, counseling)

American Psychological Association

Public Administration (master's degree)

National Association of Schools of Public Affairs and Administration

Urban and Regional Planning (master's degree)

Planning Accreditation Board

School of Allied Health Professions

Clinical Laboratory Sciences (bachelor's degree)

National Accrediting Agency for Clinical Laboratory Sciences

Health Administration (master's and executive master's degrees)

Accrediting Commission on Education for Health Services Administration

Nuclear Medicine Technology (bachelor's degree)

Joint Review Committee on Educational Programs in Nuclear Medicine Technology

Nurse Anesthesia (master's degree)

Council on Accreditation of Nurse Anesthesia Educational Programs

Occupational Therapy (master's degree)

Accreditation Council for Occupational Therapy Education

Patient Counseling (certificate)

Association for Clinical Pastoral Education

Physical Therapy (Doctorate of Physical Therapy) (D.P.T.)

Commission on Accreditation in Physical Therapy Education

Radiation Therapy Technology (bachelor's degree)

Joint Review Committee on Education in Radiologic Technology

Radiography (bachelor's degree)

Joint Review Committee on Education in Radiologic Technology

Rehabilitation Counseling (master's degree)

Council on Rehabilitation Education

School of the Arts

Art Education (bachelor's and master's degrees)

National Association of Schools of Art and Design, National Council for Accreditation for Teacher Education, and Virginia State Department of Education

Arts (all visual arts degrees)

National Association of Schools of Art and Design

Applied Music (bachelor's and master's degrees)

National Association of Schools of Music

Dance/Choreography (bachelor's degree)

National Association of Schools of Dance

Interior Design (bachelor's degree)

National Association of Schools of Art and Design/Foundation for Interior Design Education Research

Music Composition (master's degree)

National Association of Schools of Music

Music Education (bachelor's and master's degrees)

National Association of Schools of Music, National Council for Accreditation for Teacher Education, and Virginia State Department of Education

Music History (master's degree)

National Association of Schools of Music

Theatre (bachelor's and master's degrees)

National Association of Schools of Theatre

Theatre Education (bachelor's degree)

National Association of Schools of Theatre, National Council for Accreditation for Teacher Education, and Virginia State Department of Education

School of Business

Business and Accounting (all degrees)

AACSB International – Association to Advance Collegiate Schools of Business

Information Systems (bachelor's degree)

Accreditation Board for Engineering & Technology (ABET)

School of Dentistry

Dental Hygiene (bachelor's degree)

Commission on Dental Accreditation

Dentistry (D.D.S.)

Commission on Dental Accreditation

Advanced Dental Education Programs including Endodontics, Oral and Maxillofacial Surgery, Orthodontics, Pediatric Dentistry, Periodontics, Prosthodontics, and Advanced Education General Dentistry

Commission on Dental Accreditation

School of Education

Education (all degrees)

National Council of Accreditation for Teacher Education and the Virginia State Department of Education

Athletic Training (bachelor's degree)

Commission on Accreditation of Allied Health Education Programs

Recreation and Park Management, Therapeutic Recreation (bachelor's degree)

Council on Accreditation National Recreation and Park Association/American for Leisure and Recreation

School of Engineering

Biomedical Engineering (bachelor's degree)

Accreditation Board for Engineering and Technology

Chemical Engineering (bachelor's degree)

Accreditation Board for Engineering and Technology

Electrical Engineering (bachelor's degree)

Accreditation Board for Engineering and Technology

Mechanical Engineering (bachelor's degree)

Accreditation Board for Engineering and Technology

Computer Science (bachelor's degree)

Accreditation Board for Engineering and Technology

School of Medicine**Genetic Counseling (master's degree)**

American Board of Genetic Counseling

Human Genetics (master's and doctoral degrees)

American Board of Medical Genetics

Medicine (M.D.)

Liaison Committee on Medical Education

Public Health (master's degree)

Council on Education in Public Health

School of Nursing**Nursing (bachelor's and master's degrees)**

National League for Nursing (prelicensure programs) – approved by Virginia Board of Nursing

School of Pharmacy**Pharmacy (Pharm.D.)**

American Council on Pharmaceutical Education

School of Social Work**Social Work (bachelor's and master's degrees)**

Commission on Accreditation of the Council on Social Work Education

Specialized program accreditation or certification**School of the Arts****Anderson Gallery**

National Association of Schools of Art and Design

Campus Police**Police Academy**

Certified by the Virginia Department of Criminal Justice Services

Division of Student Affairs and Enrollment Services**University Counseling Services**

American Psychological Association

Student Health Services

Joint Commission on Accreditation of Health Care Organizations

Hospitals**VCU Health System**

Joint Commission on Accreditation of Health Care Organizations

Appendix F

Rights of Students Under the Family Educational Rights and Privacy Act

Pursuant to a federal statute enacted to protect the privacy rights of students (Family Educational Rights and Privacy Act of 1974 (FERPA), as amended, enacted as Section 438 of the General Education Provisions Act), eligible students of Virginia Commonwealth University are permitted to inspect and review education records of which the student is the subject. A statement of university policy concerning inspection and disclosure of education records has been formulated in compliance with the federal statute. Copies of the policy also are available from the Office of Records and Registration or on the Web at <http://www.vcu.edu/enroll/rar>.

Generally, the act provides that no personally identifiable information will be disclosed without the student's consent, except for directory information and information

to other school officials with a legitimate educational interest. When personally identifiable information, other than directory information, is disclosed, a record will be maintained of these disclosures. This record also is available for inspection and review by the student.

If an eligible student feels that his or her education record is inaccurate, misleading or otherwise in violation of the student's privacy or other rights, the student may request an amendment to the record.

Should the university fail to comply with the requirements of the act, the student has the right to file a complaint with the Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202-5901.

Parental Notification Amendment

Amendments to FERPA signed into federal law in fall 1998 specifically allows notification to the parents or guardians of students under the age of 21, who violate any law or university rule regarding use or possession of alcohol or other controlled substance. The Virginia Attorney General's Task Force on Drinking by College Students also recommended such notification in its 1998 report.

In accordance with these documents, a parental notification procedure has been included in the VCU Drug Free Schools and Workplace Policy.

Appendix G

University Centers and Institutes Directory

Center for Environmental Studies

<http://www.vcu.edu/cesweb>

Center for Public Policy

<http://www.vcu.edu/cppweb>

Clinical Research Center for Periodontal Diseases

<http://www.dentistry.vcu.edu/research/crcpd.htm>

Center for the Study of Biological Complexity

<http://www.vcu.edu/csbc>

Center for Teaching Excellence

<http://www.vcu.edu/cte>

Heart Center

<http://www.vcuhealth.org/heartcenter>

HIV/AIDS Center

<http://www.hivcenter.vcu.edu/vcuhivcenter>

Inger and Walter Rice Center for Environmental Life Sciences

<http://www.vcu.edu/rice>

Liver Center

<http://www.vcuhealth.org/program-details.asp?programID=53>

Massey Cancer Center

<http://www.vcu.edu/mcc>

Harold F. Young Neurosurgical Center

<http://www.vcuhealth.org/hfync>

Virginia Microelectronics Center

http://www.egr.vcu.edu/vmc/ie_index.html

Institute for Drug and Alcohol Studies

<http://www.vcu.edu/idas>

Institute for Psychiatric and Behavioral Genetics

<http://www.vipbg.vcu.edu>

Institute for Structural Biology and Drug Discovery

<http://www.vcu.edu/structuralbio>

Institute for Women's Health

<http://www.womenshealth.vcu.edu>

Philips Institute for Oral and Craniofacial

Molecular Biology

http://www.dentistry.vcu.edu/departments/philips/philips_home.html

Appendix H

University Resources and Services Directory

Business Services

<http://www.bsv.vcu.edu>

Campus Police

<http://www.vcu.edu/police>

Career Center

<http://www.students.vcu.edu/careers/>

Computing Services

<http://www.vcu.edu/it/>

Counseling Services, University

<http://www.students.vcu.edu/counsel/>

Dining Services

<http://www.bsv.vcu.edu/vcufood/>

Disability Support Services, Offices of

<http://www.students.vcu.edu/dss/>

Distance Education

http://www.vcu.edu/it/dist_ed/

**Equal Employment Opportunity/Affirmative
Action Services**

<http://www.vcu.edu/eoaa>

**Health Services and health insurance, University
Student**

<http://www.students.vcu.edu/health/>

Help Desk

<http://www.at.vcu.edu/helpdesk>

Housing

<http://www.students.vcu.edu/housing/>

Information Technology Services

<http://www.vcu.edu/it/>

Intercollegiate Athletics

<http://www.vcu.edu/vcurams>

Mail Services

<http://www.bsv.vcu.edu/maillsrv/>

Media Support Services

<http://www.at.vcu.edu/media/>

Online@VCU

<http://www.bsv.vcu.edu/online@vcu/>

Open Access Labs

http://www.at.vcu.edu/faq/computerlabs_classrooms.html

Parking and Transportation

<http://www.bsv.vcu.edu/vcupark/>

Preparing future faculty initiatives

<http://www.vcu.edu/pffp>

Recreational Sports

<http://www.students.vcu.edu/recsports/>

Research and scientific computing

<http://www.at.vcu.edu/research>

Retail Stores

<http://www.bsv.vcu.edu/retailstr/>

Student Academic Support Services, MCV Campus

http://www.students.vcu.edu/pda/mcv_sass.html

Student Affairs and Enrollment Services, Office of

<http://www.students.vcu.edu/>

Student Computer Initiative

<http://www.vcu.edu/sci>

Student Services Centers

<http://www.vcu.edu/enroll/ssc>

University Student Commons and Activities

<http://www.students.vcu.edu/commons/>

VCU Card

<http://www.vcuCARD.com/>

VCU e2 Bookstore

<http://shop.efollett.com/htmlroot/storehome/virginiacommonwealthuniversity146.html>

VCU Libraries

<http://www.library.vcu.edu>

VCU Medical Center Bookstore

<http://shop.efollett.com/htmlroot/storehome/virginiacommonwealthuniversity733.html>

VCUnet

<http://www.vcu.edu/vcunet>

Web Services

<http://www.vcu.edu/web>

Appendix I

VCU Academic Calendar 2004-05

Some school and/or departmental calendars may differ from the university's academic calendar. Please check with the specific program of study to ensure the appropriate calendar is followed.

August 2004

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

19-23

Advising and registration for new undergraduate students – Academic Campus

21

Official date for certifying August diplomas

23

Registration for new graduate and new certificate students – Academic Campus

23-25

Orientation for new freshmen, transfer and readmitted students – Academic Campus

Orientation and registration – MCV Campus

24

Registration for continuing students – Academic Campus

26

Fall classes begin

26-Sep 1

Add/drop and late registration

September 2004

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

3

Deadline for dean/departmental offices to submit all approved undergraduate change of major requests effective for the fall 2004 semester

6

University closed

TBA

Faculty Convocation

10

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays*

24

Last day for fall degree candidates to submit graduation applications to their advisers for December degrees – Academic Campus

Fall degree candidates should follow departmental deadlines – MCV Campus

24

Last day for undergraduate students to submit work for removal of incomplete grades from spring semester or summer sessions

October 2004

S	M	T	W	T	F	S
				1	2	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
						31

21-22

Reading days, no classes held – Academic Campus

25-29

Advising for spring semester – Academic Campus

Students should follow departmental schedule – MCV Campus

November 2004

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

1

Spring semester advance registration begins for all students

5

Last day to withdraw from a course with a mark of "W" – both campuses (except for courses not scheduled for the full semester)

25-28

University closed – evening classes (classes beginning at 4 p.m. or later) do not meet on Nov 24

December 2004

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

11

Last day of classes for fall semester – both campuses

11

December Commencement

13-17

Final examinations for fall semester – MCV Campus

13-18

Final examinations for fall semester – evening classes

13-21

Final examinations for fall semester – Academic Campus

17

Final date for graduate dean's approval signature on completion of graduate thesis/dissertation for December degree candidates (check with graduate program director regarding internal schedules for submission of copy, defense and school/college dean approval)

22-Jan 2

University closed

25

Official date for certifying December diplomas

27

Holiday intersession classes begin

29

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – holiday intersession*

University calendars are accurate at the time of publication/posting, but subject to change.

* Reasonable accommodations for completion of work missed should be made for students observing religious holidays. A partial list of major religious holidays is provided on the Web: <http://www.hr.vcu.edu/communications/Current/MajorHolidayObservances/majorholidays.htm>.

Appendix I

VCU Academic Calendar 2004-05

Some school and/or departmental calendars may differ from the university's academic calendar. Please check with the specific program of study to ensure the appropriate calendar is followed.

January 2005

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1-2

University offices closed

8

Holiday intersession classes end

11-13

Advising, registration and orientation for new undergraduate students – Academic Campus

13

Registration for new graduate and new certificate students – Academic Campus

14

Registration for continuing students – Academic Campus

17

University closed⁺

18

Spring classes begin

18-24

Add/drop and late registration

24

Deadline for dean/departmental offices to submit all approved undergraduate change of major requests effective for the spring 2005 semester

28

Last day for spring degree candidates to submit graduation applications to their advisers for May degrees – Academic Campus

Spring degree candidates should follow departmental deadlines – MCV Campus

28

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays*

February 2005

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

16

Last day for undergraduate students to submit work for removal of incomplete grades for fall semester

March 2005

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

13-20

Spring break for both campuses

21

Summer advance registration begins

25

Last day to withdraw from a course with a mark of "W" – both campuses (except for courses not scheduled for the full semester)

28-Apr 1

Advising for fall semester – Academic Campus

Students should follow departmental schedule – MCV Campus

April 2005

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

4

Fall semester advance registration begins

May 2005

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

3

Classes end for spring semester – Academic Campus; evening classes continue through May 7

4

Reading day – Academic Campus

5-13

Final examinations for spring semester – Academic Campus

6

Last day of classes for spring semester – MCV Campus

9-13

Final examinations for spring semester – MCV Campus

9-14

Final examinations for spring semester – evening classes

13

Final date for graduate dean's approval signature on completion of graduate thesis/dissertation for May degree candidates (check with graduate program director regarding internal schedules for submission of copy, defense and school/college dean approval)

21

May Commencement

University calendars are accurate at the time of publication/posting, but subject to change.

* Reasonable accommodations for completion of work missed should be made for students observing religious holidays. A partial list of major religious holidays is provided on the Web: <http://www.hr.vcu.edu/communications/Current/MajorHolidayObservances/majorholidays.htm>.

⁺ Subject to approval

Appendix I

VCU Academic Calendar 2005 Summer

Some school and/or departmental calendars may differ from the university's academic calendar. Please check with the specific program of study to ensure the appropriate calendar is followed.

May 2005

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

23-Jun 10

3-week session

23-Jun 23

5-week session

23-Jul 14

8-week evening session

25

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 3-week session*

27

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 5-week and 8-week sessions*

30

University closed⁺

June 2005

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

13-Jul 13

4 ½-week session

13-Jul 21

6-week session

13-Aug 4

8-week evening session

17

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 4 ½-week, 6-week and 8-week sessions*

24

Last day for summer degree candidates to submit graduation applications to their advisers for August degrees – Academic Campus

Summer degree candidates should follow departmental deadlines – MCV Campus

27-Jul 28

5-week session

July 2005

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

1

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 5-week session*

4

University closed⁺

14-Aug 12

4 ½-week session

18

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 4 ½-week session*

25-Aug 12

3-week session

27

Deadline for students to provide advance written notification to instructors of intent to observe religious holidays – 3-week session*

August 2005

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

12

Final date for graduate dean's approval signature on completion of graduate thesis/dissertation for August degree candidates (check with graduate program director regarding internal schedules for submission of copy, defense and school/college dean approval)

12

Summer sessions end

20

Official date for certifying August diplomas

University calendars are accurate at the time of publication/posting, but subject to change.

* Reasonable accommodations for completion of work missed should be made for students observing religious holidays. A partial list of major religious holidays is provided on the Web: <http://www.hr.vcu.edu/communications/Current/MajorHolidayObservances/majorholidays.htm>.

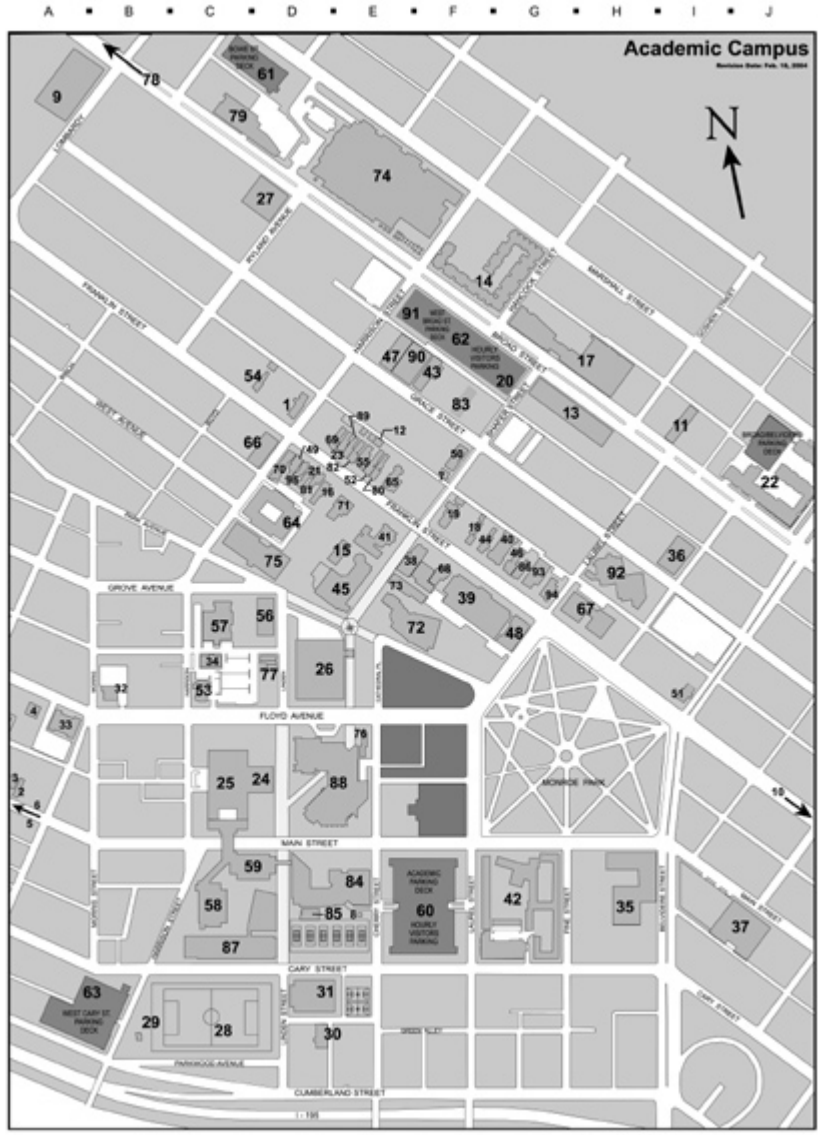
+ Subject to approval

Appendix J

VCU Campus Maps – Academic Campus

Academic Campus

1. (D-5) 1000 W. Franklin St.
2. (A-10) 1312 W. Main St.
3. (A-10) 1314 W. Main St.*
4. (A-9) 1315 Floyd Ave.
5. (A-11) 1401 W. Main St.
6. (A-10) 1435 W. Main St.
7. (F-6) 310 N. Shafer St.
8. (E-12) 6 S. Cherry St.
9. (A-1) 612-620 N. Lombardy St.
10. (J-10) 700 E. Franklin St.
11. (I-6) 906 W. Broad St.
12. (E-6) 916 W. Franklin St. (Rear)
13. (G-5) 933 West Broad Street Student Housing
14. (F-4) 1100 West Broad Street Student Apartments*
15. (E-7) Anderson Gallery, 907 1/2 W. Franklin St.*
16. (D-6) Anderson House, 913 W. Franklin St.*
17. (H-5) Arts, School of the, 1000 W. Broad St.*
18. (F-7) Bird House, 820 W. Franklin St.
19. (F-7) Blanton House, 826-828 W. Franklin St.
20. (G-5) Bookstore, Academic Campus, 1111 W. Broad St.
21. (D-6) Bowe House, 917 W. Franklin St.
22. (I-6) Broad & Belvidere Student Apartments, 600 W. Broad St.
23. (E-6) Buford House, 922 W. Franklin St.
24. (D-10) Business School Auditorium, 1015 Floyd Ave.*
25. (C-10) Business, School of, 1015 Floyd Ave.*
26. (D-9) Cabell Library, James Branch, 901 Park Ave.*
27. (D-3) Capital Garage Apartments, 1301 W. Broad St.
28. (C-13) Cary Street Field*
29. (B-13) Cary Street Field Support Facility, 1011 W. Cary St.*
30. (D-13) Cary Street Gym Annex, 917 Green Alley*
31. (D-13) Cary Street Gym, 911 W. Cary St.*
32. (B-9) Child Care Center, VCU, 1128 Floyd Ave.*
33. (A-9) Dance Center, 10 N. Brunswick St.
34. (C-9) Education Annex, 109 N. Harrison St.*
35. (H-12) Engineering, School of/Virginia Microelectronics Center, 601 W. Main St.*
36. (I-7) Facilities and Financial Services Bldg., 700 W. Grace St.
37. (J-12) Finance Building, 327 W. Main St.*
38. (E-7) Founders Hall, 827 W. Franklin St.*
39. (F-8) Franklin Street Gymnasium, 817 W. Franklin St.*
40. (G-7) Franklin Terrace, 812-814 W. Franklin St.*
41. (E-7) Ginter House, 901 W. Franklin St.*
42. (G-12) Gladding Residence Center, 711 W. Main St.*
43. (F-5) Grace Street Theater, 930-934 W. Grace St.*
44. (F-7) Harrison House, 816 W. Franklin St.
45. (E-8) Hibbs Building, 900 Park Ave.*
46. (G-7) Hunton House, 810 W. Franklin St.*
47. (E-5) Internal Audit, 944 W. Grace St.*
48. (G-8) Johnson Hall, 801 W. Franklin St.*
49. (D-6) Kearney House, 921 W. Franklin St.*
50. (F-6) Lafayette Hall, 312 N. Shafer St.
51. (I-9) Lindsey House, 600 W. Franklin St.*
52. (E-6) McAdams House, 914 W. Franklin St.
53. (C-9) Meeting Center, 101 N. Harrison St.*
54. (D-5) Meredith House, 1014 W. Franklin St.
55. (E-6) Millhiser House, 916 W. Franklin St.
56. (D-8) Moseley House, 1001 Grove Ave.
57. (C-8) Music Center, 1015 Grove Ave.*
58. (C-12) Oliver Hall-Education Wing, 1015 W. Main St.*
59. (C-11) Oliver Hall-Physical Science Wing, 1001 W. Main St.*
60. (F-12) Parking, Academic Deck, 801 W. Main St.*
61. (D-1) Parking, Bowe Street Deck, 609 Bowe St.*
62. (F-4) Parking, West Broad Street Deck, 1111 W. Broad St.*
63. (B-13) Parking, West Cary Street Deck, 1200 W. Cary St.
64. (D-7) Pollak Building, 325 N. Harrison St.*
65. (E-6) President's House, 910 W. Franklin St.
66. (D-6) Raleigh Building, 1001 W. Franklin St.*
67. (H-8) Rhoads Hall, 710 W. Franklin St.*
68. (F-7) Ritter-Hickok House, 821 W. Franklin St.*



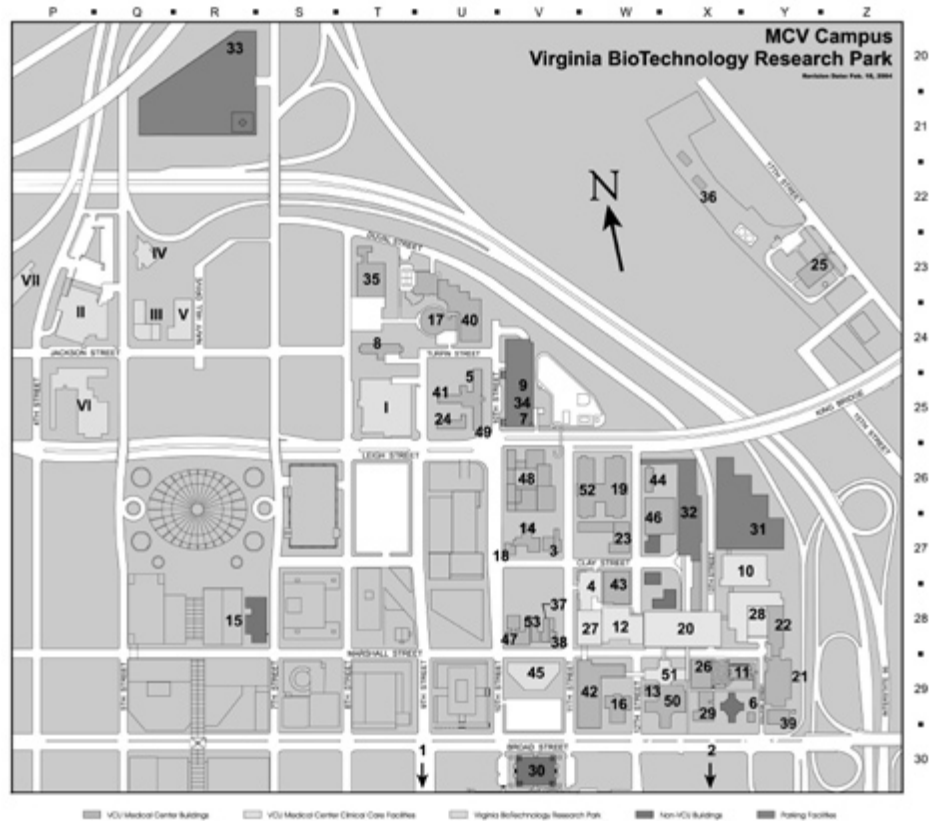
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| <ol style="list-style-type: none"> 69. (E-6) Robertson Alumni House, Richard T., 924 W. Franklin St.* 70. (D-6) Scherer Hall, 923 W. Franklin St.* 71. (E-7) Scott House, 909 W. Franklin St. 72. (E-8) Shafer Court Dining Center, 810 Cathedral Place 73. (E-8) Shafer Street Playhouse, 221 N. Shafer St.* 74. (E-2) Siegel Center, Stuart C., 1200 W. Broad St.* 75. (D-7) Singleton Center for the Performing Arts, W. E., 922 Park Ave.* 76. (E-10) Sitterling House, 901 Floyd Ave.* 77. (D-9) VISSTA, 102-106 N. Linden St.* 78. (B-1) Sports Backers Stadium, 100 Avenue of Champions* 79. (C-2) Sports Medicine Center, 1300 W. Broad St.* 80. (E-6) Stagg House, 912 W. Franklin St. 81. (D-6) Stark House, 915 W. Franklin St. 82. (E-6) Stokes House, 918 W. Franklin St. | <ol style="list-style-type: none"> 83. (F-5) Survey Evaluation Research Laboratory, 912 W. Grace St. 84. (E-11) Temple Building, T. Edward, 901 W. Main St.* 85. (D-12) Thalimer Tennis Center, 920 W. Cary St.* 86. (G-7) Thurston House, 808 W. Franklin St. 87. (C-12) Trani Center for Life Sciences, Eugene P. and Lois E., 1000 W. Cary St.* 88. (E-10) University Student Commons, 907 Floyd Ave.* 89. (E-6) Valentine House, 920 W. Franklin St. 90. (F-5) VCU Police, 938-940 W. Grace St. 91. (F-4) Welcome Center, 1111 W. Broad St.* 92. (H-7) West Grace Street Student Housing, 701 W. Grace St.* 93. (G-7) White House, 806 W. Franklin St. 94. (G-8) Williams House, 800 W. Franklin St. 95. (D-6) Younger House, 919 W. Franklin St. |
|--|--|

Appendix J

VCU Campus Maps – MCV Campus and the Virginia BioTechnology Research Park

Medical College of Virginia Campus

1. (U-30) 900 E. Main St.
2. (X-30) Adcenter, 1313 E. Main St.*
3. (V-27) Alumni House, MCV, 1016 E. Clay St.*
4. (W-28) Ambulatory Care Center, 417 N. 11th St.*
5. (U-25) Bear Hall, 600 N. 10th St.*
6. (Y-29) Beers-Newton House, College & Broad streets
7. (V-25) Bookstore, MCV Campus, 601 N. 10th St.*
8. (T-24) Cabaniss Hall, 615 N. Eighth St.*
9. (V-25) Child Care Center, MCV Hospital, 607 N. 10th St.*
10. (Y-27) Clinical Support Center, 403 N. 13th St.*
11. (Y-29) Egyptian Building, 1223 E. Marshall St.*
12. (W-28) Gateway Building, 1200 E. Marshall St.*
13. (W-29) George Ben Johnston Auditorium, 1200 E. Broad St.*
14. (V-27) Grant House, William H., 1008 E. Clay St.*
15. (R-28) Hospital Hospitality House, 610-612 E. Marshall St.*
16. (W-29) Hunton Hall, 323 N. 12th St.*
17. (U-24) Larrick Center, 641 N. Eighth St.*
18. (V-27) Leigh House, 1000 E. Clay St.
19. (W-26) Lyons Dental Building, 520 N. 12th St.*
20. (X-28) Main Hospital, 1250 E. Marshall St.*
21. (Y-29) Massey Cancer Center Addition
22. (Y-28) Massey Cancer Center, 401 College St.*
23. (W-27) McGuire Hall & Annex, 1112 E. Clay St.*
24. (U-25) McRae Hall, 600 N. 10th St.
25. (Y-23) MCV Campus Steam Plant*
26. (X-29) Medical Sciences Building, 1217 E. Marshall St.*
27. (W-28) Nelson Clinic, 401-409 N. 11th St.*
28. (X-28) North Hospital, 1300 E. Marshall St.*
29. (X-29) Nursing Education Building, 1220 E. Broad St.*
30. (V-30) Old City Hall, 1001-1007 E. Broad St.*
31. (Y-27) Parking, "D" Deck, Faculty/Staff, 515 N. 13th St.*
32. (X-27) Parking, "E" & "S" Deck, Faculty/Staff, 12th & Leigh streets*
33. (R-20) Parking, "I" Lot, Seventh Street at I-95 Interchange*
34. (V-25) Parking, "N" Deck, Patient-Vistor, 615 N. 10th St.*
35. (T-23) Physical Plant Shops Bldg., 659 N. Eighth St.*
36. (X-22) Physical Plant Storage Facilities, 1400 N. 17th St.
37. (V-28) Putney House, Samuel, 1010 E. Marshall St.
38. (V-28) Putney House, Stephen, 1012 E. Marshall St.
39. (Y-29) Randolph Minor Hall, 301 College St.*
40. (U-24) Recreation & Aquatic Center, 10th & Turpin streets*



41. (U-25) Rudd Hall, 600 N. 10th St.*
42. (W-29) Sanger Hall, 1101 E. Marshall St.*
43. (W-28) Smith Building, Robert Blackwell, 410 N. 12th St.
44. (W-26) Strauss Research Lab, 527 N. 12th St.
45. (V-29) The VCUHSC Children's Pavilion, 1001 E. Marshall St.
46. (W-27) Tompkins-McCaw Library, 509 N. 12th St.*
47. (V-28) Virginia Mechanics Institute, 1000 E. Marshall St.*
48. (V-26) Virginia Treatment Center, 515 N. 10th St.*
49. (U-25) Warner Hall, 600 N. 10th St.*
50. (X-29) West Hospital, 1200 E. Broad St.*
51. (X-29) Williams Clinic, A.D., 1202 E. Marshall St.*
52. (W-26) Wood Memorial Building, 521 N. 11th St.*
53. (V-28) Zeigler House, 1006-1008 E. Marshall St.*

Virginia BioTechnology Research Park

- I. (T-25) Biotech Center, 800 E. Leigh St.*
- I. (T-25) Biotech One, 800 E. Leigh St.*
- II. (P-24) Biotech Two, 400 E. Jackson St.*
- III. (Q-24) Biotech Three, 701 N. Fifth St.*
- IV. (Q-23) Biotech Four, 737 N. Fifth St.*
- V. (R-24) Biotech Five, 700 Navy Hill Drive*
- VI. (P-25) Biotech Six, 600 N. Fifth St.*
- VII. (P-23) Biotech Seven, 700 N. Fifth St.*

* Accessible (may not indicate total accessibility)

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Updates to the 2004-05 Undergraduate Bulletin

Admission to the University

Amendment to the **Credit for International Baccalaureate (IB) Diplomas and courses** (Page 18 in the 2004-05 Undergraduate Bulletin):

An IB diploma **no longer** entitles an applicant to automatic admission to the University Honors Program.

College of Humanities and Sciences

Amendment to the General Education Requirements for Urban Environment.

Approved List K

- PSYC 493 is now PSYC 491 Topic: Youth in Corrections/Service Learning (only this topic)
- CRJS 491 Topic: Youth in Corrections/Service Learning (only this topic)
- SOCY 493 is now SOCY 391 Topic: Youth in Corrections/Service Learning (only this topic)

School of the Arts

Amendment to the General Education Requirements for Humanities and Social Sciences for the School of the Arts (Page 166 in the 2004-05 Undergraduate Bulletin):

7.1.2a Humanities

Literature (including literature in English, foreign literature in English translation or foreign literature in the original language)



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